Subject and Author Index to Volume 234
American Journal of Physiology

American Journal of Physiology:
Cell Physiology

American Journal of Physiology:
Endocrinology, Metabolism and Gastrointestinal Physiology

American Journal of Physiology:
Heart and Circulatory Physiology

American Journal of Physiology:
Regulatory, Integrative and Comparative Physiology

American Journal of Physiology:
Renal, Fluid and Electrolyte Physiology

Page — Issue Guide

American Journal of Physiology
Volume 234

January	C1–C57	E1–E98	H1–H100	R1–R79	F1–F88
February		E99–E219	H101–H222		F89–F170
March	C59–C130	E221–E342	H223–H322	R81–R157	F171–F259
April		E343–E443	H323–H502		F261–F356
May	C131–C204	E445–E534	H503–H652	R159–R235	F357–F454
June		E535–E676	H653–H754		F455–F551

Subject Index to Volume 234

Absorption: *see* specific site or subject: *see also* Volume absorption
4-Acetamido-4′-isothiocyano-2,2′-disulfonic stilbene
  organic anion transport, renal cortex, F302
Acetate
  transport, pars recta, F332
Acetazolamide
  ammoniagenesis, renal, F235
  bicarbonate absorption, collecting tubules, F141
  bicarbonate reabsorption, renal insufficiency, F472
Acetylcholine
  cholinergic and histaminergic reflex vasodilation, H305
  epinephrine and, interaction on heart cyclic AMP-dependent protein kinase, H432
  vagal sensitivity and, differential sensitivity, cardiac, H460
  vascular capacitance, intestinal, H7
Acetylsalicylic acid esterase
  gastric mucosa, E606
Acetylsalicylic acid hydrolase
  gastric mucosa, E606
N-Acetyltransferase
  circadian rhythms, pineal, running and blindness, R110
Acid-base balance
  insulin secretion and, E426
  water and air breathers (trout, turtle), R155
Acidosis
  glutamine metabolism (sheep), E197
  glutamine transport, renal mitochondria, F514
  metabolic, bicarbonate reabsorption, F472
  respiratory, citric acid cycle activity, H40
  respiratory, renin secretion, H573
  respiratory, reversibility, perfused heart, H40
ACTH: *see* Adrenocorticotropin
Actinomycin D
  prostaglandin E synthesis and water flow, bladder (toad), F532
Action potentials: *see* Potentials
Action space
  mapping, thermodynamics, R85
Acute renal failure: *see* Kidney failure
Acyl donor
  fatty acid esterification, E236
Acyl receptors
  fatty acid esterification, E236
Acylhydrolase
  prostaglandin E synthesis and water flow, bladder (toad), F532
Adenine nucleotides
  cytosolic phosphorylation state, C73, C82
  levels, soleus muscle, E407
  myocardial oxygen deficiency, H620
Adenosine
  myocardial oxygen deficiency, H620
  vascular reactivity, lung, red blood cells and platelets in, H186
Adenosine monophosphate, cyclic
  calcium uptake, microsomal, aorta, H508
  calcium uptake, muscle mitochondria, C7
  cell suspension cultures, growth regulation, C131
  glycogen metabolism, hepatic, diabetes, E13
  insulin release, isolated islets, E527
  phosphorylation, microsomal, aorta, H508
  phosphorylation, sarcoplasmic reticulum, hyperthyroidism, H426
  prostaglandin E synthesis and water flow, bladder (toad), F532
  prostaglandin $F_{2\alpha}$ and coronary ligation, H718
  protein kinase activity, cardiac, H638
  protein kinase dependence, acetylcholine and epinephrine interaction, H432
  vascular smooth muscle, H508
Adenosine phosphonate, cyclic
  inorganic phosphate, renal handling, F497
Adenosine triphosphatase: *see also* Sodium-potassium-ATPase; Calcium-ATPase; Magnesium-ATPase
  myosin, pressure overload and digitalis effects, cardiac, H253
  myosin, recovery after pressure-overload hypertrophy and failure, H711
Adenosine triphosphate
  ion transport, plasma membrane, F89
  sugar transport, insulin-stimulated, soleus muscle, E407
  synthesis, myocardial, oxygen deficiency and, H620
Adenylate cyclase
  activity, myocardial, physical training, H608
  plasma membrane, renal medulla, F247
ADH: *see* Antidiuretic hormone; Vasopressin
Adipocytes: *see* Fat cells
Adipose cells: *see* Fat cells
Adipose tissue
  brown: *see* Brown fat
  genetic obesity, development, E568
  lipid metabolism, portacaval diversion effects, E579
Adipsia: *see* Thirst; Drinking
Adrenal cortex
  circadian rhythm differences, mutual influence, E515
Adrenal glands
  coronary regulation, newborn (lamb), H173
  [des-Asp^1]angiotensin I, F130
  renal hypertension, E267
Adrenal medulla
  biosynthesis, development (swine), E137
  dopamine β-hydroxylase secretion (bovine), E600
  enzymes, E137
  epinephrine secretion (bovine), E600
  function, development (swine), E137
  hyperresponsivity, spontaneous hypertension, H690
Adrenal steroids: *see* Steroids
Adrenalectomy
  coronary regulation and, newborn (lamb), H173
  gluconeogenesis, liver (chicken and carnivorous bird), R115
  renal hypertension, E267
Adrenergic blockade: *see* Blockade
Adrenergic mechanisms
  blood flow, mesenteric (baboon), E457
  inotropism and chronotropism, cardiac, H525
  insulin secretion modulation, E106
  norepinephrine, hormonal and neurotransmitter functions, E252
  protein kinase, heart, H432
  restrained spontaneously hypertensive rats, H690
Adrenergic neurons
  smooth muscle, oviduct, C96
Adrenergic receptors: *see* Receptors
Adrenergic stimulation
  circulation, mesenteric (baboon), E457
Adrenocortical activity: *see* Adrenal cortex
Adrenoceptors: *see* Receptors, adrenergic
Adrenocorticotropin
  feedback inhibition, rate-sensitive, during stress, R46
  feedback, negative, R39
  permeability, plasma/cerebrospinal fluid barrier, E327
  secretion, angiotensin II infusion, R66
Aerobic glycolysis: *see* Glycolysis
Afferent nerves
  and descending spinal sympathetic pathways, interaction, H223
Afferents
  signal, for renal excretion, H21
  vagal, nitroglycerin effects on cardiac function and regional blood flow, H244
  vagal, systemic blood pressure restraint during hemorrhage, H192
Afterload
  Frank-Starling mechanism, H338
Air-blood barrier
  pulmonary drug absorption, neonatal, C191
Air breathers
  myocardial inotropy of carbon dioxide (turtle), R155
Airway, upper
  receptor reflexes (monkey), H293
Alanine
  oxidation, carnitine effects, liver and skeletal muscle, E494
Alanine aminotransferase
  gluconeogenesis (chicken and carnivorous bird), R115
Albumin
  microspheres, ^{99m}Tc-labeled, hemodynamic effects on bile secretion, liver, E584
  radioiodinated human serum, escape rate, volume expansion, F386
Aldosterone: *see also* Renin-angiotensin-aldosterone
  acid-labile conjugate, E472
  metabolism, diuretic effects, E472
  metabolism, perfused kidney, E472
  metabolites, production rate, renal, E472
  metabolites, renal handling, E472
  natriuresis, spontaneous hypertension, F29
  plasma, [des-Asp^1]angiotensin I effects, F130

Aldosterone (*continued*)
potassium excretion, renal (sheep), F371
prostaglandin E synthesis and water flow, bladder (toad), F532
sodium and water retention, F490
urinary excretion rate, E472
vasopressin-treated diabetes, F106
Aliphatic esterase
gastric mucosa, E606
Allantoin
uric acid metabolism, muscular dystrophy, E421
Allopurinol
uric acid synthesis (chicken), F446
Alloxan diabetes: *see* Diabetes
Alveolar membrane
filtration coefficient, H266
Amiloride
bicarbonate absorption, collecting tubules, F141
chloride fluxes, skin (frog), F437
sodium transport, bladder (toad), F192
sodium ion transport, stomach (mammalian), E228
transepithelial potentials, distal tubule (reptile), F238
Amines
biogenic, brain, feedback inhibition, R46
Amino acids
absorption, ileum, newborn, E257
branched-chain, fetal heart, E306
gastric secretion stimulation, intestinal phase, E64
metabolism, fetal heart, E306
oxidation, carnitine effects, liver and skeletal muscle, E494
transport, pars recta, F332
transport, placental microvillous membrane vesicles, C27
transport, plasma membrane, F89
uptake, placental, C27
tubular handling of microinfused angiotensin II, F325
p-Aminohippurate
organic ion transport, renal cortex, F302
p-Aminohippuric acid
absorption, pulmonary, neonatal, C191
transport, and prostaglandin transport, renal, comparison, F80
Aminopyrine
electrophysiology and secretion, stomach (frog), E120
Ammonia
excretion, renal, F514
Ammoniagenesis
acetazolamide effects, renal, F235
AMP: *see* Adenosine monophosphate
Androgens
sexual maturation, male, in continuous light, E262
Anephria: *see* Nephrectomy
Anesthesia
pentobarbital, circulatory filling pressure and vascular capacitance measurements, H94
pentobarbital, descending pressor pathway, H152
pentobarbitone, plasma vasopressin and, E463
steroid, cerebral circulatory response to metabolic depression (baboon), H74
Angiocardiography
mitral valve opening and closure, H146
Angiotensin: *see also* Renin-angiotensin-aldosterone; Isorenin-angiotensin
central and peripheral blockade, hypertension, H629
production, fatty acids and, E593
renin, plasma, activity, H670
renin secretion during CO_2 retention, H573
vascular resistance, gut (dogfish), R196
Angiotensin antagonists
central and peripheral blockade, hypertension, H629
genetic hypertension, H447
hypotensive effect in spontaneously hypertensive sodium-depleted rats, H447
renal hypertension, E267
Angiotensin-converting enzyme: *see* Converting enzyme
Angiotensin I
[des-Asp^1]angiotensin I, renal and adrenal responses, F130
Angiotensin II
adrenocorticotropin secretion, R66
antidiuretic hormone release, central sites of action, F135
central blockade, drinking inhibition, F41
11-hydroxycorticosteroid secretion, R66
prostaglandin E synthesis and water flow, bladder (toad), F532
renin, plasma, activity, R66
tubular handling, amino acids and, F325
vascular reactivity, lung, red blood cells and platelets in, H186
vasopressin secretion, R66
Angiotensinase
kidney, developing, R141
lung, developing, R141
Anions
organic, transport, renal cortex, SITS effects, F302
renin secretion, F10
Anoxia
adenosine triphosphate synthesis, myocardial, H620
myocardial function, H620
sugar transport, insulin-stimulated, ATP effects, soleus muscle, E407
Antiandrogens
occlusive arterial thrombosis, H454
Antiarrhythmic drugs
cardiac action potential, maximum upstroke velocity, H312
Antidiuresis
periventricular preoptic hypothalamus and, R122
Antidiuretic hormone: *see also* Vasopressin
bioassay, identification in prolactin powder, F318
particle aggregation, intramembranous, time course, urinary bladder (toad), F461
prolactin preparations, contamination, F318
release, angiotensin II-stimulated, central sites of action, F135
water retention, carbon dioxide pressure and, F291
Anti-inflammatory agents
nonsteroidal, prostaglandin E synthesis and water flow, bladder (toad), F532
nonsteroidal, sodium and water retention, F490
Antipyrine
^{14}C-labeled, blood flow measurement, cerebral, H59
Antral pouch
esophageal sphincter regulation, E157
Antrectomy
gastric emptying, E375
Antrum
gastric, esophageal sphincter regulation, E157
pyloropancreatic reflex. E468
Aorta
calcium-45 efflux, lanthanum and reduced temperature effects, C139
coarctation-banding, left ventricular concentric hypertrophy, model, H515
contractility, H508
histamine synthesis, shear stress and, H701
microsomal calcium uptake, cyclic AMP effects, H508
microsomal phosphorylation, cyclic AMP effects, H508
vasodepressors, hemodynamic responses, H67
Aortic valve
closed, diastolic vibration, second heart sound, H696
Apparatus and techniques: *see* specific subject and site
Appetite: *see* Feeding
L-Arabinose
transport, adipocytes, E112
uptake, adipocyte glucose transport measurement, E112
Arachidonic acid
prostaglandin E synthesis and water flow, bladder (toad), F532
renal vascular response to prostaglandin inhibitors, H496
Arginine
glucagon and glucose turnover, extrapancreatic, E213
insulin secretion and acid-base alterations, E426
Arginine vasopressin: *see* Vasopressin
Arrhythmias
hypothalamic stimulation-induced, H199
reflex mechanisms, H199
strophanthidin toxicity, Purkinje fibers, H477
Arsenic
excretion, biliary, metallothionein effects, E47
Arterial wall: *see* Wall
Arteries
connective tissue composition, H533
human, potassium in, H404
mechanical properties, arginine vasopressin effects, H167
mechanics, passive, H533
oxygen: *see* Oxygen
pressure: *see* Pressure
smooth muscle: *see* Muscle, smooth, vascular
thrombosis: *see* Thrombosis
Arterioles
cerebral: *see* Cerebral arterioles
pressure: *see* Pressure
Artifacts
brain removal technique, E365
Aspartate aminotransferase
gluconeogenesis (chicken and carnivorous bird), R115
Aspartic acid
angiotensin II, tubular handling, F325

Aspirin
occlusive arterial thrombosis, H454
Atherogenesis
histamine synthesis, aortic, H701
shear stress, aortic, H701
ATPase: *see* Adenosine triphosphatase; Calcium-ATPase; Sodium-potassium-ATPase; Magnesium-ATPase
Atria: *see* Heart atria
Atrioventricular conduction: *see* Conduction
Atropine
bicarbonate secretion, gastric, E535
pressure, lower esophageal sphincter (opossum), E301
sinus node response, postnatal, H412
ventricular electrical stability, H503
Automaticity
atrial, ectopic, H471
sinus node, H471
Autonomic agents
electromyogram, colon, E641
neonatal growth, cardiac effects (sheep), H520
Autonomic blockade: *see* Blockade
Autonomic maturation
sinus node, H412
Autonomic nervous system
ventricular electrical stability, H503
Autonomic organization
parabrachial pons mediation of renal vasoconstriction, R223
Autonomic reflex: *see* Reflexes
Autoregulation
cerebral arterial and arteriolar, hypotension and hypertension, H371
coronary, histograms, H361
coronary, myocardial Po_2 distribution, H361
glucose uptake, midterm fetal liver, E560
reactive hyperemia, skeletal muscle, H352
renal, whole kidney and single nephron studies, F357
Axons, giant
ephaptic transmission (squid), C162

Baroreceptors: *see* Receptors: Reflexes
Base
weak, electrophysiology and secretion, stomach (frog), E120
Basement membrane: *see* Membrane
Basolateral membrane: *see* Membrane
Bicarbonate
absorption, cortical collecting tubules, F141
pyloropancreatic reflex, E468
reabsorption, renal insufficiency, F472
secretion, gastric, E535
secretion, pancreas, E286
Bile
cholereses, taurocholate- and secretin-induced, E146
erythritol clearance, induced cholereses, E146
mannitol clearance, induced cholereses, E146
secretion, hemodynamic effects, liver, E584
vitamin K_1 transport, E54
Bile acids
hydroxy and keto, comparison, E637
sham feeding, E417
structure, biliary lipid secretion and, E637
Bile flow
taurocholate- and secretin-induced cholereses, E146
Bile salt
excretion, taurocholate- and secretin-induced cholereses, E146
Biliary excretion
metals, metallothionein effects, E47
Biliary secretion
sham feeding, E417
Biocompatibility
membrane oxygenators (sheep), H646
Bioengineering
contributions to physiology, R159
Biogenic amines: *see* Amines
Biological fields
thermodynamic description, R85
Biological fluids: *see* Fluids
Biology
mathematical, contributions to physiology, R159
physics "envy," R1
spectroscopy, power and communicational, R3
thermodynamics, R3, R85
Biophysics
thermodynamics, R3
Bladder: *see* Gallbladder; Urinary bladder
Blindness
circadian rhythm, adrenocortical, E515
circadian rhythm, pineal and activity cycles, R110
Blockade
adrenergic, insulin secretion modulation dependent on thyroid states, E106
adrenergic, mesenteric circulation (baboon), E457
β-adrenergic, ventricular electrical stability, H503
β-adrenergic, ventricular fibrillation threshold, H592
autonomic, pacemaker responses, H465
central, of thirst, F41
central and peripheral angiotensin, in hypertension, H629
cholinergic receptor, drinking inhibition, F41
tetrodotoxin, skeletal muscle (frog), C181
vagal, systemic blood pressure during hemorrhage, H192
Blocking agents
α-, reflex vasodilation, H305
Blood
constituents: *see also* specific constituent
constituents, hibernation (marmot), R178
sequestration, radioiodinated serum albumin and ^{51}Cr-labeled erythrocytes, F386
Blood-brain barrier
iodide (teleosts), R61
nonelectrolytes (salamander), R52
Blood-cerebrospinal fluid barrier
nonelectrolytes (salamander), R52
Blood flow: *see also* Circulation; Microcirculation
capillary, hypoxia, E248
capillary, reactive hyperemia, skeletal muscle, H352
carotid artery, metabolic depression (baboon), H74
distribution, hypothermia and posthypothermia, H706
distribution, nutritional and nonnutritional circuits, hindpaw, neural control, H384
edema, histamine-catecholamine interaction, H180
endocardial-epicardial ratio, coronary occlusion, H653
endocardial-epicardial ratio, endurance exercise (miniature swine), H614
gut (dogfish), R196
heart, regional, nitroglycerin effects, H244
hepatic, bile secretion and, E584
iliac, nitroglycerin effects, H244
lung, control by respiratory gases, (duck), R146
overlap, quantitation, H487
uterine, prostaglandin effects (sheep), H557
Blood flow, cerebral
acute hypotension and hypertension, H371
autoregulation, during renal hypertension, H35
5-hydroxytryptamine and (baboon), H300
hypoxia (birds, duck), H230
measurement with iodo[^{14}C]antipyrine, H59
metabolic regulation, arterioles, H582
oxygen consumption and, neonatal, R209
two-component clearance curve (birds, duck), H230
Blood flow, coronary
adrenals and, newborn (lamb), H173
capillary-myocardial exchange, H679
collateral, endurance exercise (miniature swine), H614
debt, reactive hyperemia, H625
metabolism and (pig), H597
myocardial Po_2 distribution, H361
nitroglycerin, H244
rubidium-86 uptake, H724
segment stroke work (pig), H597
Blood flow, intestinal
hyperosmolality, ileal, H14
hypoxia, E248
vascular capacitance, using mean transit time of indicator, H7
Blood flow, mesenteric
adrenergic mechanisms (baboon), E457
excitement-induced (baboon), H210
histamine receptors, E370
nitroglycerin, H244
occlusion shock, splanchnic artery, H1
Blood flow, myocardial
collateral and ischemic, quantitation with microspheres and diffusible indicator, H487
endurance exercise (miniature swine), H614
radiochemical determination, H399
Blood flow, renal
continuous measurement, H219
[des-Asp^1]angiotensin I effects, F130
excitement-induced (baboon), H210
intraarterial drug administration, H219
nitroglycerin, H244
occlusion shock, splanchnic artery, H1
prostaglandin inhibitors, H496

Blood flow, renal (*continued*)
renal nerve stimulation, H219
renin secretion during CO_2 retention, H573
tubuloglomerular feedback, F154
Blood pressure: *see also* Pressure
arterial, arginine vasopressin effects, H167
coronary occlusion, hydrogen peroxide effects, H28
developing lung and kidney, R141
hibernation (marmot), R178
indirect measurement, hyperresponsivity, spontaneous hypertension, H690
systemic, vagal restraint during hemorrhage, H192
Blood volume: *see also* Volume
intestinal, vascular, using mean transit time of indicator, H7
measurement, with radioiodinated human serum albumin and ^{51}Cr-labeled erythrocytes, F386
Body composition: *see also* specific constituent
glucose loading and (squirrel monkey), R20
Body fluids: *see* Fluid
Body weight: *see* Weight
Bone
aerobic glycolysis (embryonic chick, newborn rat), C41, C51
lactate production and gradients, calvaria (embryonic chick, newborn rat), C41, C51
lactic acid production, calvaria, C51
medullary, vitamin D metabolism (quail), E622
red cell space, hypocalcemic femur, E6
Bone cells
aerobic glycolysis (embryonic chick, newborn rat), C41, C51
Bone membrane
aerobic glycolysis (embryonic chick, newborn rat), C41, C51
Bradycardia
diving (frog), R172
trigeminal and aortic vasodepressor responses, H67
Bradykinin
prostaglandin E synthesis and water flow, bladder (toad), F532
renal vascular responses to prostaglandin inhibitors, H496
Brain
angiotensin blockade, hypertension, H629
antidiuretic hormone release, angiotensin II-stimulated, F135
biogenic amines, feedback inhibition, R46
blood flow: *see* Blood flow, cerebral
isorenin-angiotensin system, drinking inhibition, F41
lesions, thirst and normal water economy in, R122
Brain barrier systems
iodide (teleosts), R61
nonelectrolytes (salamander), R52
Brain removal technique
artifact, E365
glucose, E365
Branchial vascular resistance: *see* Resistance
Bromobenzene
cytochrome *P*-450 induction, hepatocytes, C102
Bronchi
parabronchial blood flow, control (duck), R146
Brown fat
calcium uptake, cold acclimation, C7
Brush border membrane
glucose carrier, sodium ion-dependent, renal cortex, E1
Buffer values
muscle, F432
Bumetanide
chloride transport, cornea (bullfrog), F297
Bypass: *see* Shunt

Cadmium
uptake, hepatic, metallothionein effects, E47
Cadmium thioneins
hepatic, hypozincemia associated with bacterial infection, E399
Caffeine
calcium ion association, skeletal muscle (frog), C110
Calcemia
phosphate, inorganic, renal handling, F497
Calcium
dietary, vitamin D metabolism (quail), E622
fluxes, kidney cells, R29, R34
homeostasis (embryonic chick, newborn rat), C41
internal, control of intercellular coupling, heart, H101
internal, control of potassium conductance, H101
magnesium metabolism, F466
phosphate reabsorption, renal tubular, F22
pools, kidney cells, R29, R34
prostaglandin E synthesis and water flow, bladder (toad), F532
red cell space, bone, in hypocalcemia, E6
strophanthidin toxicity, Purkinje fibers, H477
transport, renal peritubular surface (teleost), F522
uptake, aortic microsomal, cyclic AMP and, H508
uptake, mitochondria, skeletal muscle, cold acclimation, C7
Calcium-45
desaturation, kidney cells, kinetic analysis, R29
desaturation, kidney slices, flow-through chambers, R34
efflux, aortic, lanthanum and reduced temperature effects, C139
Calcium-ATPase
phosphorylation, sarcoplasmic reticulum, hyperthyroidism, H426
Calcium ions
release, pH_i and, skeletal muscle (frog), C110
transport, sarcoplasmic reticulum, hyperthyroidism, H426
Calvaria
lactate production (embryonic chick, newborn rat), C41, C51
lactic acid production, C41, C51
Capacitance, vascular
intestinal, using mean transit time of indicator, H7
measurement, H94
Capillaries: *see also* Blood flow; Microcirculation; Filtration; Permeability; Pressure; Resistance
density, hypoxia, E248
skeletal muscle, reactive hyperemia, arterial pressure effects, H352
surface area, nutritional and nonnutritional circuits, hindpaw, H384
Capillary exchange
extravascular protein and, H52
Capillary membrane
pulmonary, filtration coefficient, H266
Capillary-myocardial exchange
coronary flow reduction, effects, H679
Capillary-tissue fluid: *see* Fluid
Carbachol
bicarbonate secretion, gastric, E535
Carbon
glutamine: *see* Glutamine carbon
Carbon dioxide
cerebral vascular response, neonatal, R209
inotropy, myocardial, water and air breathers (trout, turtle), R155
pressure, antidiuretic hormone-induced water retention, F291
production, paraquat-perfused lung, E653
release, radiochemical determination, myocardium, H399
retention, renin secretion, H573
tension, cerebral cortex, metabolic depression (baboon), H74
tension, intragastric, bicarbonate secretion and, E535
total, collecting tubules, F141
Carbonic anhydrase
ammoniagenesis, renal, F235
bicarbonate absorption, collecting tubules, F141
bicarbonate reabsorption, renal insufficiency, F472
Cardiac cells: *see* Heart cells; Muscle cells; Myocytes
Cardiac death, sudden
ventricular electrical stability, H503
ventricular fibrillation threshold, H592
Cardiac output
blood volume expansion, H21
hypoxemia, in spontaneous hypertension, H275
ischemia and exercise, H157
neonatal growth (sheep), H520
Cardiac tamponade
acute, renal function, F117
Cardiac vein
drainage, quantitation, H163
Cardiogenic shock
coronary occlusion, hydrogen peroxide effects, H28
Cardiopulmonary bypass: *see* Shunt
Cardiovascular reflexes: *see* Reflexes
Carnitine
amino acid oxidation, liver and skeletal muscle, E494
Carnitine acyltransferase
amino acid oxidation, liver and skeletal muscle, E494
Carotid artery
blood flow: *see* Blood flow

comparative mechanics (rat, rabbit, dog), H280
series elasticity, muscle length effects, C146
Carotid loop
hemorrhaged plasma volume restoration by gastrointestinal fluid, H80
Carotid reflexes: *see* Reflexes
Catecholamines
adrenal medullary function, development (swine), E137
adrenocorticotropin feedback inhibition, R46
cardiac response to physical training, H608
circulation, mesenteric (baboon), E457
dopamine β-hydroxylase secretion, adrenal (bovine), E600
epinephrine secretion, adrenal (bovine), E600
histamine-induced edema, H180
hormonal and neurotransmitter function, E252
insulin secretion, adrenergic modulation, E106
plasma, spontaneous hypertension, H690
Cathepsin D
fetal heart, E306
occlusion shock, splanchnic artery, H1
skeletal muscle, E38
Catheter, indwelling
arterial, blood pressure measurement, spontaneous hypertension, H690
respiratory gas sampling, pregnant uterus (swine), R25
Cations
organic, transport, renal cortex, F302
transport, insulin effects (duck), C59
Cells: *see also* specific type or site
chemical activities, intracellular, F261
cultures, cyclic nucleotides and growth regulation, C131
integrity, acute renal failure, F171
shape, and water reabsorption, relation, proximal nephron, model, F308
sodium and potassium activities, F261
Cephalic ischemia: *see* Ischemia
Central blockade: *see* Blockade
Cerebral arteries
acute hypotension and hypertension, H371
chloride reduction, H404
potassium reduction, H404
sodium reduction, H404
Cerebral arterioles
acute hypotension and hypertension, H371
circulation, tissue hypoxia, H582
Cerebral blood flow: *see* Blood Flow; Circulation; Microcirculation
Cerebral ventricles
thirst and normal water economy, R122
volume loading, cerebrospinal fluid pressure transients, R167
Cerebrospinal fluid: *see* Fluid; Pressure
Cerebrovascular system
carbon dioxide, neonatal, R209
5-hydroxytryptamine, potentiation (baboon), H300
regulation, hypoxia, H582
Cerebrum
oxygen, metabolic rate, neonatal, R209
vascular resistance: *see* Resistance
vasoconstriction: *see* Vasoconstriction
Cervical sympathectomy: *see* Sympathectomy
Channels-ratio method
procainamide determination, myocardial, H399
Chemoreceptors: *see* Receptors
Chenodeoxycholic acid
biliary lipid secretion, E637
Chloride
excretion, urinary, regulation, F97
fluxes, amiloride-induced reduction, skin (frog), F437
reabsorption, furosemide effects, F97
reabsorption, segmental, nephron, as a function of load, F97
reabsorption, volume expansion, F97
reduction, cerebroarterial response, H404
transport, bumetanide effects, cornea (bullfrog), F297
Chloride ions
volume absorption, pars recta, F332
p-Chlorophenylalanine
adrenocorticotropin feedback inhibition, R46
Cholecystitis
fluid transport, gallbladder mucosa, E575
Cholecystokinin
gastric emptying, inhibition, E375
trophic action, pancreas, E286
Cholecystokinin octapeptide
smooth muscle response, gallbladder, E44
Cholelithiasis
fluid transport, gallbladder mucosa, E575
Cholera toxin
prostaglandin E synthesis and water flow, bladder (toad), F532
Cholereses
bile, taurocholate- and secretin-induced, E146
Cholesterol
lipid secretion, biliary, E637
plasma membrane composition, renal medulla, F247
Cholic acid
lipid secretion, biliary, E637
Choline
bicarbonate absorption, collecting tubules, F141
Cholinergic augmentation
pressure, esophageal sphincter (opossum), E301
Cholinergic blockade: *see* Blockade
Cholinergic inhibition
pressure, esophageal sphincter (opossum), E301
Cholinergic mechanisms
acid secretion and motility, gastric mucosa (kitten, ferret), E319
protein kinase, heart, H432
Cholinergic receptors: *see* Receptors
Cholinergic vasodilation: *see* Vasodilation
Choroid plexus
brain barrier system for iodide (teleosts), R61
permeability, plasma/cerebrospinal fluid barrier, E327
Chromaffin tissue
dopamine β-hydroxylase secretion (bovine), E600
epinephrine secretion (bovine), E600
Chromatography
gas, prostaglandin biosynthesis, renal papilla, F64
thin-layer, prostaglandin E synthesis and water flow, bladder (toad), F532
Chromium-51
erythrocyte escape rate in volume expansion, F386
Chronotropism
adrenergic effects, cardiac, H525
Cimetidine
gastric secretion inhibition, oxygen consumption during, E445
Circadian rhythm: see Rhythm
Circulation: *see also* Blood flow
cerebral, time course, in metabolic depression (baboon), H74
mesenteric, adrenergic mechanisms (baboon), E457
mesenteric, histamine receptors, E370
osmotic water exchange (frog), R172
pulmonary, transition, fetal (goat), H346
renal, glucose metabolism, F415
retinal, fluorescein dye-dilution technique, H315
retinal, fluorescein recirculation, H315
Circulatory filling pressure
measurement, H94
Citrate synthase
respiratory acidosis, perfused heart, H40
Citric acid cycle
respiratory acidosis, perfused heart, H40
Clearance: *see* specific site or subject
Coagulation
intravascular, reticuloendothelial function, H323
Coarctation-banding
left ventricular concentric hypertrophy production, model, H515
Cocaine
α-adrenoceptor affinity, cutaneous veins, H330
norepinephrine metabolism, saphenous vein, H235
Colchicine
lactose inhibition, mammary gland, C177
Cold acclimation
calcium uptake, muscle mitochondria, C7
Cold exposure
calcium-45 efflux, aortic, C139
Collagen
content, arterial, H533
Collecting ducts, tubules: *see* Kidney tubules, collecting
Colon
intrinsic nerves, electromyogram, E641
potassium secretion, F48
sodium ions, electrochemical gradient, F48
Combustion technique
procainamide determination, myocardium, H399
Communication
hierarchic, thermodynamics and, R3
Communication sciences
contributions to physiology, R159
Comparative physiology: *see* Physiology
Compartments
glucose turnover, nonsteady state, model, E84
sodium and potassium ions, subcellular, F261

Compartments (*continued*)
sucrose, ^{3}H-labeled, skeletal muscle and sarcoplasmic reticulum (frog), C181
thermodynamics, models R3
Compliance
left ventricular free wall and septal diastolic, comparison, H392
Compliance, vascular
intestinal, delayed, fluid exchange and, H660
intestinal, using mean transit time of indicator, H7
placental, H289
Computers: *see* Models; and the specific subject or site
Concentrating mechanism
urinary, newborn, F16
Conceptus: *see* Fetus; Placenta; Embryo
Conductance
ionic, repetitive firing frequency and (mollusc), C155
ionic basis, cardiac, H101
osmotic, ileum, H14
potassium, control by internal calcium, H101
shunt, sodium ion, stomach (mammalian), E228
Conduction
atrioventricular, acetylcholine and vagal stimulation effects, H460
dromotropic, cardiac, acetylcholine and vagal stimulation effects, H460
Conductivity
hydraulic, basement membrane, Henle's loop, F54
hydraulic, coefficient, pars recta, F340
Connective tissue
content, arteries, H533, H542
content, carotid artery, H280
Constriction
arterial responses, H542
thoracic inferior vena cava, renin release, F10
Constrictors
sympathetic, cardiovascular-respiratory reflex interactions (monkey), H293
Contractility, Contraction: *see* Muscle
Contracture
myocardial, magnesium fluxes, C115
Convection
and diffusion, capillary-tissue fluid, H52
Converting enzyme
lung and kidney development, R141
Converting enzyme inhibitor
adrenal responses, F130
renal responses, F130
Cooling
cutaneous veins, α-adrenoceptor affinity and, H330
Copper
excretion, biliary, metallothionein effects, E47
Corneal epithelium
transport, mathematical modeling, F215
Coronary artery: *see* Autoregulation; Blood flow; Ligation; Occlusion; Perfusion; Reperfusion; Resistance
Coronary sinus
drainage, quantitation, H163
Coronary vessels
adrenal regulation, newborn (lamb), H173
Corticosteroids
binding, globulins, in pregnancy (monkey), E489
feedback inhibition, fast, model, R39
feedback, negative, R39, R46
Corticosterone
feedback, negative, R39
plasma, adrenocortical circadian rhythm, E515
vasopressin-treated diabetes, F106
Corticotropin-releasing factor
feedback inhibition, R46
Coupling
electrotonic, heart cells, viral effects, embryo (chick), C170
excitation-contraction, skeletal muscle (frog), C181
intercellular, control by internal calcium, heart, H101
Creatine phosphate
adenosine triphosphate synthesis, myocardial, in oxygen deficiency, H620
myocardial function, in oxygen deficiency, H620
Creatinine
clearance, [des-Asp^1]angiotensin I effects, F130
excretion, hypertension, spontaneous, F29
Cuff, pneumatic
automatic timer, H740
inflation device, H740
pressure-sensitive switch, H740
solenoid valve, H740
Currents
ionic, electrical activity, cardiac, H101
ionic, heart cells, viral effects, embryo (chick), C170
potassium, transient, temperature effects (mollusc), C155
short-circuit, chloride fluxes, skin (frog), F437
short-circuit, prostaglandin E synthesis and water flow, bladder (toad), F532
Cutaneous veins
cooling, α-adrenoceptor affinity and, H330
Cyanide
transepithelial potentials, distal tubule (reptile), F238
Cybernetics
contributions to physiology, R159
Cyclic adenosine phosphonate: *see* Adenosine phosphonate, cyclic
Cyclic AMP: *see* Adenosine monophosphate, cyclic
Cyclic GMP: *see* Guanosine 5′-phosphoric acid, cyclic
Cyclic nucleotides: *see* Nucleotides
Cycloheximide
prostaglandin E synthesis and water flow, bladder (toad), F532
Cycloleucine
glucose metabolism, renal, regional, F415
Cyclostomes
iodide, brain barriers (teleosts), R71
nonelectrolytes, brain barriers (salamander), E52
Cytochalasin B
glucose transport, adipocytes, E112
Cytochrome *c*
turnover number, cardiac mitochondria, C73
Cytochrome *P*-450
induction in subpopulation of hepatocytes, C102
Cytoplasmic pools
sodium and potassium ions, F261
Cytosolic adenine nucleotide
phosphorylation state, C73, C82
Cytosolic metabolism
and mitochondrial respiration, energy relationships, heart, C73

Dantrolene sodium
calcium ion release, skeletal muscle (frog), C110
Deaminated metabolites: *see* Metabolites
Death, cardiac: *see* Cardiac death
Dehydrocholate
hemodynamic effects on bile secretion, liver, E584
Dehydrogenases
muscle (tuna), R136
Demeclocycline
prostaglandin E synthesis and water flow, bladder (toad), F532
Denucleation
membrane surface, oxygenator priming technique (sheep), H646
Deoxycorticosterone hypertension: *see* Hypertension
2-Deoxy-D-galactose
transport, renal (flounder), F424
feeding, behavioral response, E20
feeding, glucoprivic, behavior, E617
Depolarization, potassium
norepinephrine metabolism, H235
series elasticity, H542
Depression, metabolic: *see* Metabolic depression
[des-Asp^1]Angiotensin I: *see* Angiotensin I
Descending pressor pathway: *see* Pressors
Detergent
activation, salt gland (duck), C59
Dexamethasone
glutamine metabolism (sheep), E197
glucose transport, adipocytes, E112
prostaglandin E synthesis and water flow, bladder (toad), F532
Dextrans
neutral, glomerular permselectivity, F455
Diabetes
amino acid oxidation, carnitine effects, liver and skeletal muscle, E494
extrapancreatic glucagon and glucose turnover, E213
Diabetes, alloxan
enzymes, glucose regulation, E13
glycogen metabolism, liver, E13
Diabetes insipidus
hereditary hypothalamic, drinking inhibition, F41
vasopressin treatment, prolonged, F106
Diastole
stress-strain relations, papillary muscle, H416
vibration, closed aortic valve, second heart sound, H696
Diastolic stiffness: *see* Muscle, heart
Diet: *see* Feeding
Diffusion
and convection, capillary-tissue fluid, H52

facilitated, myoglobin function, heart, H567
thermodynamics, R85
Digitalis
myosin ATPase and mechanics in pressure overload, cardiac, H253
Dihomo-γ-linolenic acid
pulmonary vascular bed, H133
1,25-Dihydroxyvitamin D_3
metabolism (quail), E622
phosphate, inorganic, renal handling, F497
24,25-Dihydroxyvitamin D_3
metabolism (quail), E622
Dilators: *see* Vasodilators
2,3-Diphosphoglycerate
hemodynamic responses to acute hypoxemia in spontaneous hypertension, H275
spectrin binding, oxygen-hemoglobin affinity, C36
Diphosphonates
renal handling, F497
Disaccharidase
circadian rhythms, postnatal development, small intestine, E500
inflammation, intestinal mucosa, R72
Disodium dichloromethane diphosphonate
renal handling, F497
Disodium ethane-1-hydroxy-1,1-diphosphonate
renal handling, F497
Dispersion models
glucose turnover, nonsteady state, E84
Diuresis
potassium excretion (sheep), F371
Diversion, portacaval: *see* Shunt
Diving
arterial baroreceptor reflexes (seal), H730
bradycardia (frog), R172
Dopamine
occlusion shock, splanchnic artery, H1
Dopamine β-hydroxylase
secretion, adrenal (bovine), E600
Dorsolateral funiculus
descending pressor pathway, H152
Drinking: *see also* Thirst
adult, prenatal and postnatal sodium deprivation, F59
circadian rhythm synchronization (squirrel monkey), R130
inhibition, central angiotensin II blockade, F41
inhibition, cholinergic receptor blockade, F41
water intake, intestinal bypass surgery, E389
Dromotropic response
acetylcholine and vagal stimulation, cardiac, H460
Drugs: *see also* specific drug or subject
absorption, pulmonary, neonatal, C191
Ductus arteriosus
endoperoxides, action (lamb), H117
patency and closure (lamb), H117
prostaglandin action (lamb), H117
thromboxanes, action (lamb), H117
Duodenum
gastrointestinal hormones, muscular layer responses (opossum, cat), E60
motility: *see* Motility
Dye-dilution: *see also* Indicator-dilution
fluorescein, retinal circulation, H315
Dystrophy, muscular: *see* Muscular dystrophy

Eadie-Hofstee plot
angiotensin-converting enzyme, developing lung and kidney, R141
Ear oximetry
heart rate response to isocapnic hypoxia, H129
Edema
histamine-catecholamine interaction, microvascular, H180
pulmonary, filtration coefficient, pulmonary exchange vessels, H266
Edrophonium
pressure, lower esophageal sphincter (opossum), E301
Egg
fertile, temperature dynamics (chicken), R183
Elasmobranchs
iodide, brain barriers (teleosts), R71
nonelectrolytes, brain barriers (salamander), R52
Elasticity: *see* Muscle, and the specific site
Elastin
content, arterial, H533
Electrical activity
ionic basis, cardiac tissues, H101
Electrical parameters
heart cell aggregates, viral effects, embryo (chick), C170
Electrical potentials: *see* Potentials
Electrical stability
ventricular, vagal tone and stellectomy effects, H503
Electrical stimulation
norepinephrine metabolism, saphenous vein, H235
Electrochemical gradients
sodium ions, colon, F48
sodium ions, plasma membrane, F89
Electrodes: *see also* Microelectrodes
bipolar, electromyography of limb muscles of small animals (axolotl, salamander), C198
Electroencephalogram
cerebral circulatory response to metabolic depression (baboon), H74
Electrogenic active transport
heart, H101
Electrogenic sodium pump: *see* Pump
Electrogram
magnesium fluxes, myocardial contracture, C115
regional, coronary occlusion, H653
Electrolytes
excretion, potassium excretion and (sheep), F371
plasma, hibernation (marmot), R178
Electromagnetic flow probes
blood flow, uterine, prostaglandin effects (sheep), H557
Electromyography
bipolar electrode for limb muscles of small animals (axolotl, salamander), C198
colon, intrinsic nerves, E641
Electron microscopy: *see* Microscopy
Electrophysiology
action potential, cardiac, maximum upstroke velocity, measurement with sample/hold peak detector, H312
colon, intrinsic nerves, E641
heart, H101
renal distal tubule (reptile), F238
spike bursts, oviduct, E430, E439
stomach, inhibitor and weak bases (frog), E120

Electrotonic coupling
heart cells, viral effects, embryo (chick), C170
Embryo
aerobic glycolysis, bone (chick), C41, C51
heart cells, electrical parameters, viral effects (chick), C170
End plate
bipolar electrode, small animals, C198
Endocardial-epicardial flow: *see* Blood flow
Endoperoxides
analogs, contractile effects, intrapulmonary vessels (canine, bovine), H139
ductus arteriosus (lamb), H117
Endothelium
glomerular, permselectivity, F455
Endurance exercise: *see* Exercise
Energy
cytosol-mitochondrion relationships, heart, C73
debt, reactive hyperemia, H625
expenditure, monosodium glutamate-induced obesity, neonatal, measurement, E532
metabolism, cellular, homeostatic regulation, C82
Energy-dispersive spectrometer: *see* Spectrometry
Enteral fluid: *see* Fluid
Entrainment
circadian rhythm synchronization (squirrel monkey), R130
mutual, adrenocortical activity, E515
Enzymes: *see also* specific enzyme or site
cardiac cell isolation, H123
lysosomal: *see* Lysosomes
Ephaptic transmission
giant axons (squid), C162
Epicardium
mapping, H471
Epidural volume loading
cerebrospinal fluid pressure transients, R167
Epinephrine
and acetylcholine, interaction on heart cyclic AMP-dependent protein kinase, H432
hyperresponsivity, spontaneous hypertension, H690
oxygen exchange and vascular resistance, totally perfused trout, R201
protein kinase activity, cardiac, H638
secretion, adrenal (bovine), E600
vascular resistance, gut (dogfish), R196
Epithelial cells
intestinal, 3-*O*-methylglucose transport, phloretin and theophylline effects (chicken), C64
sodium transport pool (toad), F1
Epithelium
corneal, transport, mathematic modeling, F215
intestinal, phosphate transport, vitamin D-dependent (chick), E379
potassium transport, transepithelial, F261
sodium transport, transepithelial, F261
Erythritol
clearance, biliary, induced choleresis, E146
Erythrocytes
membrane, spectrin binding of 2,3-diphosphoglycerate, C36
permeability, renal glucose metabolism,

Erythrocytes (*continued*)
F415
polyamines, pregnancy and lactation, E451
sequestration, radioiodinated serum albumin escape rate, F386
space, hypocalcemic femoral bone, E6
vascular reactivity, lung, H186
Erythrogenin
extrarenal, nephrectomy-hypoxia time increase, F510
Erythropoietic factor
nephrectomy-hypoxia time increase,
Erythropoietin
nephrectomy-hypoxia time increase, F510
Esophageal sphincter, lower
gastric antrum regulation, E157
inhibition by female sex hormones (opossum), E243
noncholinergic, nonadrenergic inhibitory neuron (opossum), E273
pressure, cholinergic augmentation and inhibition (opossum), E301
pressure, pentagastrin effects (opossum), E301
vagal inhibitory pathway, 5-hydroxytryptamine participation (opossum), E273
vagal stimulation (opossum), E359
vagotomy (opossum), E359
Esophagostomy
Komarov-type, esophageal sphincter regulation, E157
Esophagus
function, thoracic vagotomy (opossum), E359
function, vagal stimulation (opossum), E359
manometry, rapid pull-through, E157
peristalsis, vagal innervation (opossum), E359
Esterase, aliphatic
gastric mucosa, E606
Esterification
fatty acid: *see* Fatty acids
Estradiol
occlusive arterial thrombosis, H454
17β-Estradiol
α-adrenoceptor affinity, cutaneous veins, H330
Estrogen
cerebrovascular response to 5-hydroxytryptamine (baboon), H300
fetal developmental effects (pig), E190
lower esophageal sphincter muscle inhibition (opossum), E243
spike bursts, oviduct, E439
vitamin D metabolism (quail), E622
Ethacrynic acid
transepithelial potentials, distal tubule (reptile), F238
Excitation-contraction
coupling, skeletal muscle (frog), C181
uncoupling, magnesium fluxes, myocardial contracture, C115
Excitement
mesenteric and renal dynamics (baboon), H210
Exercise
chronic: *see* Exercise, training
descending pressor pathway, H152
endurance, coronary collateral blood flow (miniature swine), H614
growth hormone, E611
growth, somatic, E611
insulin, E611
mesenteric dynamics (baboon), H210
pacemakers, ectopic artrial, H465
renal dynamics (baboon), H210
running, circadian rhythms, pineal, in blindness, R110
swimming, contractile potential, H421
treadmill stress test, coronary collateral blood flow (miniature swine), H614
Exercise, training
catecholamine effects, cardiac, H608
contractile potential, papillary muscle, H421
heart performance in ischemia, H215
myocardial effects, H608
pre- and postcapillary resistance, spontaneous hypertension, H439
triglyceride reduction, E221
Extracellular fluid: *see* Volume; Volume expansion
Extracellular potentials: *see* Potentials
Extracellular resistance: *see* Resistance
Extrasystole
electrical stability, ventricular, H503
threshold, ventricular fibrillation, H592

Fasting
amino acid oxidation, carnitine effects, liver and skeletal muscle, E494
gastric emptying, glucose vs. fat, E660
gluconeogenesis, liver (chicken and carnivorous bird), R115
glucose homeostasis, newborn, E129
glutamine metabolism (sheep), E197
lipoproteins, very low density, secretion, E277
Fat
body, determination, by underwater weighing and volume displacment, E94
brown: *see* Brown fat
exogenous, glucose homeostasis, newborn, E129
gastric emptying, after nonliquid meals, E660
Fat cells
glucose transport, measurement with L-arabinose uptake, E112
glucose transport system, insulin and insulin mimickers, E484
glucose utilization, bovine hypothalamic extract and, E554
insulin-resistant, fatty acid synthesis, E182
metabolism, spontaneously obese rat, E182
Fatty acids
competitors, liver, E542
esterification, monoglyceride effects, E236
esterification, sugar effects, E236
pancreatic islets (ovine), E162
polyunsaturated, lipid transport and, E54
protein binding, liver, E542
renin inhibition, E593
synthesis, insulin-resistant adipocytes, E182
Fatty acids, free
glucose loading (squirrel monkey), R20
metabolism, chronic exercise, E221
Feedback
delayed, adrenocorticotropin, R46
inhibition, fast, R39, R46
macula densa, F154
Feedback, negative
arterial pressure control system, R104
corticosteroids, R46
corticosteroid, fast, rate-sensitive, during stress, R39
inhibition, developing lung and kidney, R141
Feedback, tubuloglomerular
chronic tubular obstruction (*Necturus*), F112
filtration rate responses to nephron perfusion, F154
renal autoregulation and, F357
stop-flow pressure responses to nephron perfusion, F154
Feeding
appetite, intestinal bypass surgery, E389
circadian rhythm, postnatal development, E500
circadian rhythm synchronization (squirrel monkey), R130
dietary restriction, fetal development (pig), E190
glucagon suppression after vagotomy, E314
nonliquid meals, gastric emptying, glucose vs. fat, E660
nutrition, growth hormone and, E611
nutrition, somatic growth, E611
nutritional and nonnutritional circuits, neural control, hindpaw, H384
postprandial mesenteric and renal responses to exercise and excitement (baboon), H210
Feeding behavior
2-deoxy-D-glucose, E20
glucoprivic, E617
insulin, E20
Feeding, sham
biliary secretion, E417
jejunal transport, E417
pancreatic secretion, E417
Female sex hormones: *see* Sex hormones
Femoral vein
α-adrenoceptor affinity. cooling and, H330
Femur
bone red cell space, hypocalcemia, E6
Fetal-maternal transfer: *see* Placenta
Fetus: *see also* Placenta; Pregnancy; Embryo
development, dietary restriction and ovarian steroidal effects (pig), E190
glucose production, hepatic, midterm, E560
glucose uptake autoregulation, hepatic, midterm, E560
indomethacin effects on pulmonary vascular response to ventilation (goat), H346
placental compliance, H289
protein balance, heart, regulation, E306
sodium deprivation, subsequent adult thirst and salt preference, F59
sodium metabolism, F59
water metabolism, F59
Fibrillation, ventricular
electrical stability, H503
vagal tone and stellectomy, H503
vulnerability, protective zone, H592
Fibrinogen
plasma, half-life, measurement, E504

protein synthesis, gastrointestinal, E648
Fibroblastic cells
suspension cultures, growth regulation, C131
Fibular nerve
deep and superficial, nutritional and nonnutritional circuits, H384
Fick method, direct
hemodynamic responses to acute hypoxemia in hypertension, H275
Filtration: *see also* Ultrafiltration
Filtration coefficient
capillary, nutritional and nonnutritional circuits, hindpaw, H384
capillary, intestinal, delayed vascular compliance, H660
exercise, spontaneous hypertension, H439
pulmonary exchange vessels, H266
Filtration, glomerular
autoregulation, F357
glucocorticoid-induced increase, F166
feedback responses to nephron perfusion, F154
parathyroid hormone effects, F393
potassium excretion (sheep), F371
Filtration, single nephron
feedback responses to perfusion, F154
glucorticoid-induced increase, F166
salt load, intravenous (starling), F270
Firing frequency, repetitive
mechanism for minimizing temperature effects (mollusc), C155
Flow probes, electromagnet: *see* Electromagnetic flow probes
Flowmeter
thermistor, urine, F452
Flow-through chambers
calcium-45 desaturation, kidney slices, R34
Fluid
enteral, restoration of hemorrhaged plasma volume, H80
exchange, capillary-tissue, extravascular protein, H52
exchange, intestinal, delayed vascular compliance, H660
extracellular: *see* Volume; Volume expansion
gastrointestinal, restoration of hemorrhaged plasma volume, H80
interstitial, motion, extravascular protein in, mathematical model, H52
interstitial, space, skeletal muscle (frog), C181
intestinal, restoration of hemorrhaged plasma, H80
microdrop analysis technique, with energy-dispersive x-ray spectrometer on a scanning electron microscope, F255
plasma/cerebrospinal, barrier, permeability, E327
transport, gallbladder mucosa, cholelithiasis, E575
Fluid absorption
isotonic, luminal hypotonicity, pars recta, F349
potential difference, tubular, F381
proximal tubule, F279
sodium effects, proximal tubules (snake), F68
Fluid, body
control, blood volume expansion, H21
homeostasis, neural substrates, R122
homeostasis, periventricular preoptic hypothalamus, R122
hypertension, spontaneous, F29
Fluid, cerebrospinal
nonelectrolytes (salamander), R52
pressure transients, epidural and ventricular volume loading, R167
vasopressin, radioimmunoassay, E463
Fluorescence
intensity, retinal circulation, H315
Fluoride
balance, magnesium effects, E343
metabolism, magnesium effects, E343
Fluorocarbon
cerebral microcirculation, H582
myoglobin function, isolated heart, H567
Fluorophotometry
retinal circulation, H315
Food deprivation: *see* Fasting
Food intake: *see* Feeding
Force transducer: *see* Transducers
Forcing, parametric
arterial pressure control system, R104
Forelimb
histamine-catecholamine microvascular interaction, H180
weight: *see* Weight
Frank-Starling mechanism
utilization in conscious dogs, H338
Freeze-blown technique
brain removal, E365
Funiculus, dorsolateral
descending pressor pathway, H152
Furosemide
chloride reabsorption, segmental, nephron, F97

Gallbladder
fluid transport, mucosal, cholelithiasis, E575
motility: *see* Motility
vasoactive intestinal polypeptide, smooth muscle response, E44
Gas chromatography: *see* Chromatography
Gas, respiratory
blood flow distribution, control, lung (duck), R146
pregnant uterus (swine), R25
Gastric: *see also* Stomach
Gastric acid: *see also* Gastric mucosa; Gastric secretion
Gastric antrum: *see* Antrum
Gastric emptying
cholecystokinin inhibition, E375
fractional rates, E660
glucose and fat, relative rates, E660
Gastric juice
sham feeding, E417
Gastric metabolism: *see* Stomach
Gastric motility: *see* Motility
Gastric mucosa
acetylsalicylic acid hydrolase, E606
acid secretion and motility, simultaneous monitoring (kitten, ferret), E319
electrophysiology and secretion, inhibitors and weak bases (frog), E120
injury, E606
muscularis externa, acid secretion and motility (kitten, ferret), E319
sodium ion transport (mammalian), E228
Gastric secretion: *see also* Gastric acid
bicarbonate, E535
inhibition, oxygen consumption, E445
inhibitors and weak bases (frog), E120
intestinal phase, stimuli, E64
Gastrin
esophageal sphincter regulation, E157
gastric secretion stimulation, intestinal phase, E64
pyloropancreatic reflex, E468
Gastrointestinal fluid: *see* Fluid
Gastrointestinal hormones
duodenal muscle layers (opossum, cat), E60
Gastrointestinal malignancies
protein synthesis, E648
Gastrointestinal physiology
electromyogram, E641
Genetic obesity: *see* Obesity
Geometric space
mapping, thermodynamics, R85
Gills
metabolism, totally perfused trout, R201
oxygen exchange and vascular resistance, totally perfused trout, R201
Globulins
corticosteroid-binding, pregnancy (monkey), E489
Glomerular feedback: *see* Feedback
Glomerular filtration: *see* Filtration; Ultrafiltration
Glomerular permselectivity
barrier function based on molecular size and charge, F455
nephrotic syndrome, F455
Glomerular pressure: *see* Pressure
Glomerulotubular balance
acute cardiac tamponade, F117
Glomerulus
basement membrane, permselectivity, F455
endothelium, permselectivity, F455
epithelial slit diaphragm, permselectivity, F455
Glucagon
extrapancreatic, glucose turnover, E213
pancreatic, feeding suppression after vagotomy, E314
Glucagonemia
portacaval diversion, adipose tissue, E579
Glucocorticoids
glomerular filtration rate, increased, mechanism, F166
prostaglandin E synthesis and water flow, bladder (toad), F532
Glucogenicity
glutamine (sheep), E197
Gluconeogenesis
fasting and adrenalectomy effects, hepatic (chicken and carnivorous bird), R115
glucose homeostasis, newborn, E129
glutamine carbon metabolism, renal, F123
renal, F415
Glucoprivation
feeding behavioral response, E20, E617
Glucose
absorption, intestinal, E629
adrenal medullary (swine), E137
blood, hibernation (marmot), R178
brain removal technique, E365
clearance, extrapancreatic glucagon effects, E213
clearance, nonsteady state, tracer methods, E84

Glucose (*continued*)
countertransport, adipocytes, E112
enzyme regulation, diabetes, E13
enzyme regulation, hepatic, E13
gastric emptying, after nonliquid meals, E660
homeostasis, exogenous fat and gluconeogenic substrate effects, newborn, E129
hyperosmotic, vascular resistance and lymph flow, ileum, H14
insulin secretion and acid-base alterations, E426
isotopically labeled, nonsteady state measurements, E84
loading, unrestrained conditions (squirrel monkey), R20
pancreatic islets (ovine), E162
phlorizin and, interactions, proximal tubule, F270
tolerance tests, unrestrained conditions (squirrel monkey), R20
turnover, extrapancreatic glucagon control, E213
turnover, nonsteady state measurement, tracer studies, E84
uptake, autoregulation, midterm fetal liver, E560
vascular reactivity, lung, red blood cells and platelets in, H186
Glucose analogues
fetomaternal transfer, placental (sheep), E32
Glucose carrier
artificial, renal cortex, model, E1
sodium ion-dependent, renal cortex, E1
sonicated liposomes, renal cortex, E1
Glucose metabolism
adult hepatocytes, C122
blood, portacaval diversion, E579
insulin binding, soleus muscle, E348
paraquat perfusion, lung, E653
pentose pathway, E97
phlorizin effects, renal, F485
renal, regional, F415
Glucose production
extrapancreatic glucagon effects, E213
midterm fetal liver, E560
nonsteady state, tracer methods, E84
Glucose transport
adipocytes, measurement with L-arabinose uptake, E112
fat cells, insulin and insulin mimickers, E484
pars recta, F332
proximal tubules, F279
tubular, leaked load, F480
Glucose utilization
bovine hypothalamic extract, effects, E554
extrapancreatic glucagon effects, E213
liver, C122
newborn, E129
D-Glucose
transport, plasma membrane, F89
L-Glucose
transport, adipocytes, E112
Glucose-6-phosphatase
gluconeogenesis (chicken and carnivorous bird), R115
β-Glucuronidase
prostaglandin $F_{2\alpha}$ and coronary ligation, H718
Glutaminase
ammoniagenesis, renal, F235
Glutamine
glucogenicity (sheep), E197
metabolism (sheep), E197
mitochondrial, and metabolism, renal, rapid-mixing, rapid-filtration technique, F514
transport, interorgan (sheep), E197
unidirectional flux (sheep), E197
Glutamine carbon
isotope distribution, theoretical treatment of data, F123
metabolism, renal, F123
γ-Glutamyl transpeptidase
ammoniagenesis, renal, F235
Glycine
^{15}N-labeled, protein synthesis, visceral, E648
Glycogen
feeding suppression, E314
glucose autoregulation, midterm fetal liver, E560
metabolism, hepatic, diabetes, E13
Glycogen phosphorylase
hepatic, diabetes, E13
Glycogen synthase
hepatic, diabetes, E13
Glycogen synthase phosphatase
hepatic, diabetes, E13
Glycol metabolites
norepinephrine metabolism, saphenous vein, H235
Glycolysis
aerobic, bone (embryonic chick, newborn rat), C41, C51
Glycosides, cardiac
strophanthidin toxicity, Purkinje fibers, H477
Gold thioglucose
insulin binding, soleus muscle, E348
Goldblatt hypertension: *see* Hypertension
Gonadal hormones
occlusive arterial thrombosis, H454
vitamin D metabolism (quail), E622
Gonadotropins
sexual maturation, male, in continuous light, E262
Gracilis muscle
cholinergic and histaminergic reflex vasodilation, H305
Growth
cardiac myocytes, H123
cardiac output, neonatal (sheep), H520
placental: *see* Placenta
regulation, suspension cultures, mammalian cells, C131
somatic, exercise, E611
Growth hormone
protein turnover, skeletal muscle, E38
serum, exercise, E611
Growth hormone, human
C-terminal fragments, synthetic, E527
hyperglycemic action, E521
insulin release, E527
Guanosine 5′-phosphoric acid, cyclic
cell suspension cultures, growth regulation, C131
Gut: *see* Intestines

Half-life
fibrinogen, plasma, measurement, E504
Heart
acetylcholine and vagal stimulation, differential sensitivity, H460
arrhythmias: *see* Arrhythmias
auscultation, second sound-diastolic vibration, relation, H696
autonomic maturation, H412
blood flow: *see* Blood flow
citric acid cycle activity, regulation, H40
contractility: *see* Muscle, heart, contraction
cytosol-mitochondrion energy relationships, C73
death, sudden: *see* Cardiac death
diving, responses (seal), H730
dynamics, fluorocarbon perfusion, H567
electrogenic active transport, H101
electrophysiology, H101
exercise-trained, contractile potential, papillary muscle, H421
exercised, catecholamine effects, H608
function, coronary occlusion shock, hydrogen peroxide effects, H28
function, nitroglycerin effects, H244
growth, H123
hypertrophy: *see* Hypertrophy
inotropy: *see* Muscle, heart, contraction
mechanics, pressure overload with digitalis, H253
metabolic regulation, H40
metabolism, coronary blood flow and (pig), H597
mitochondria: *see* Mitochondria
muscle: *see* Muscle, heart
myoglobin function, fluorocarbon perfusion, H567
myosin ATPase: *see* Adenosine triphosphatase
nexal junction, viral effects, embryo (chick), C170
organ culture, E306
performance, adrenergic inotropic and chronotropic effects, H525
performance, ischemia and physical training, H215
phosphorylase activity, protein kinase regulation, H638
potentials: *see* Potentials
pressure: *see* Pressure
protein balance, hydrocortisone and insulin effects, fetal, E306
protein kinase, H638
pump: *see* Pump
respiratory acidosis, reversibility, H40
stroke volume: *see* Volume
stroke work, segment, coronary blood flow and (pig), H597
volume: *see* Volume
Heart atria
ectopic automaticity, H471
pacemaker: *see* Pacemaker
pacing: *see* Pacing
Heart cells: *see also* Muscle cells
adult, enzymatic isolation, H123
aggregates, electrical parameters, viral effects, embryo (chick), C170
dimensions and body weight, allometric relationships, H123
dimensions and number, normal and hypertrophic heart, H123
surface, viral effects, embryo (chick), C170
Heart failure
pressure-overload, myosin ATPase recovery, H711
Heart rate
adrenergic effects, H525
carotid-airway reflex interactions (monkey), H293
excitement and exercise effects (baboon), H210

Frank-Starling mechanism, H338
isocapnic hypoxia, H129
neonatal growth (lamb), H520
postnatal response to atropine and propranolol, H412
Heart sounds
second, diastolic vibration, closed aortic valve, H696
Heart ventricles
activation sequence, myocardial oxygen consumption, H260
contraction: *see* Muscle, heart, contraction
electrical stability, vagal tone and stellectomy effects, H503
extrasystole: *see* Extrasystole
fibrillation: *see* Fibrillation
function, coronary autoregulation and, H361
pacing: *see* Pacing
Heart ventricles, left
compliance, free wall and septal diastolic, comparison, H392
diameter, nitroglycerin effects, H244
end-diastolic strain, H392
filling, adrenergic effects, H525
isovolumic function, H361
natural strain, H392
pressure-diameter relations, Frank-Starling mechanism, H338
pressure-strain relations, H392
Heartburn
lower esophageal sphincter muscle inhibition (opossum), E243
Heat fluxes
fertile egg (chicken), R183
Heidenhain pouch
interdigestive motor activity, E333
Hematocrit
^{51}Cr-labeled erythrocytes, in volume expansion, F386
radioiodinated albumin, in volume expansion, F386
Hemicorpus
perfusion, protein turnover, skeletal muscle, E38
Hemodynamics
acute renal failure, techniques, F171
hepatic, bile secretion and, E584
hypoxemia and spontaneous hypertension, H275
inotropic state, cardiac, H562
shear stress, aortic, H701
trigeminal and aortic vasodepressor responses, H67
whole kidney and single nephron, F357
Hemoglobin: *see also* Oxygen-hemoglobin
absorption, retinal circulation, H315
oxygen-binding properties, C36
Hemoglobin-oxygen dissociation
acute hypoxemia in spontaneous hypertension, H275
Hemolymph
nauplius (shrimp), R216
Hemorrhage
arterial pressure control system, R104
blood pressure, systemic, vagal restraint, H192
plasma volume restoration by gastrointestinal fluid, H80
Hemorrhagic hypotension: *see* Hypotension
Henle's loop
ascending limb, phosphate reabsorption, F287
basement membrane, isolated perfused, physical properties, F54
Hepatocytes: *see also* Liver cells
centrilobular, cytochrome *P*-450, C102
glucose metabolism, C122
Heptapeptides
renal and adrenal responses, F130
Herpes virus
heart cell electrical parameters, embryo (chick), C170
Heterogeneity
plasma membrane, F89
phosphate reabsorption, nephron, F287
potassium ions, intracellular, F261
sodium ions, intracellular, F261
Hibernation
renin-angiotensin-aldosterone system (marmot), R178
Hierarchies
biological, R3
pacemaker, H471
physics, R3
Hindpaw
nutritional and nonnutritional circuits, neural control, H384
Histamine
acid secretion and motility, gastric mucosa (kitten, ferret), E319
cholinergic vasodilation, H305
edema formation, antagonism by catecholamines, H180
gastric secretion, oxygen consumption and, E445
receptors: *see* Receptors
renal vascular responses to prostaglandin inhibitors, H496
synthesis, aortic, shear stress and, H701
Histaminergic vasodilation: *see* Vasodilation
Histidine decarboxylase
shear stress, aortic, H701
Histogram
coronary autoregulation and, H361
Histology
fundic, E286
kidney, F207
pancreas, E286
Homeokinesis
thermodynamics, R3, R85
Homeostasis
body fluid: *see* Fluid
Homeostatic regulation
energy metabolism, cellular, C82
Hormonal function
norepinephrine, E252
Hormones: *see* specific hormone or site
Hydration, tissue
hyperosmolality, ileal, H14
Hydraulic conductivity: *see* Conductivity
Hydrocortisone
protein balance, regulation, fetal heart, E306
Hydrogen dioxide
glucose transport, fat cells, E484
Hydrogen ion concentration: *see* pH
Hydrogen ions
secretion, gastric, E535
secretion, inhibitors and weak bases, stomach (frog), E120
water and air breathers (trout, turtle), R155
Hydrogen peroxide
acute coronary occlusion, H28
Hydrostatic pressure: *see* Pressure
Hydrostatic techniques
body fat determinations, E94
11-Hydroxycorticosteroid
secretion, angiotensin II infusion, R66
6-Hydroxydopamine
adrenocorticotropin feedback inhibition, R46
5-Hydroxytryptamine
cerebrovascular response, potentiation (baboon), H300
vagal inhibitory pathway, lower esophageal sphincter (opossum), E273
25-Hydroxyvitamin D_3
metabolism (quail), E622
Hyodeoxycholic acid
lipid secretion, biliary, E637
Hypercalciuria
absorptive, E294
lithium-induced, E294
parathyroid hormone-dependent, E294
Hypercapnia
renin secretion, H573
water retention, antidiuretic hormone-induced, F291
Hyperemia
rubidium-86 reflow and uptake, H724
Hyperemia, reactive
coronary perfusion with nonoxygenated solution, H625
skeletal muscle capillaries, arterial pressure effects, H352
Hyperglycemic action
human growth hormone synthetic C-terminal fragments, E521
Hyperinsulinemia
genetic obesity, development, E568
human growth hormone synthetic C-terminal fragments, E521
Hypernatremia
periventricular preoptic hypothalamus, R122
Hyperosmolality
lymph flow, ileum, H14
vascular resistance, ileum, H14
Hyperosmolarity
strophanthidin toxicity, Purkinje fibers, H477
Hyperosmotic infusion
vascular resistance and lymph flow, ileum, H14
Hyperparathyroidism
glomerular ultrafiltration, F393
Hypertension
acute, cerebral arterial and arteriolar response, H371
arterial pressure-urinary output relations, R98
deoxycorticosterone, central and peripheral angiotensin blockade, H629
Goldblatt, pressure-urinary output relations, R98
genetic, hypotensive effects of angiotensin antagonists, H447
hemodynamics, H275
pressure regulation, R98
renin-angiotensin, E25, E267
sensitizing factors, E25
systemic, hemodynamics, in acute hypoxemia, H275
vasoactive factor, new, E25
Hypertension, renal
adrenal glands and, E267
central and peripheral angiotensin blockade, H629
cerebral blood flow autoregulation, H35
Hypertension, spontaneous
arterial pressure-urinary output relations, R98
central and peripheral angiotensin

Hypertension, spontaneous (*continued*)
blockade, H629
exercise effects on pre- and postcapillary resistance, H439
hemodynamics in acute hypoxemia, H275
hyperresponsivity to indirect measurement of blood pressure, H690
natriuresis, exaggerated, aldosterone in, F29
sodium-depletion, hypotensive effects of [Sar^1,Thr^8]angiotensin II, H447
Hyperthyroidism
insulin secretion, adrenergic modulation, E106
phosphorylation, myocardial sarcoplasmic reticulum, H426
Hypertonic mediums
prostaglandin output stimulation, renal papilla, F64
Hypertonic solutions
skeletal muscle response (frog), C181
Hypertrophy
contractile potential, papillary muscle, H421
contractile state, left ventricular, in volume overload, H88
growth, cardiac, H123
left ventricular, concentric, reproducible model, H515
myosin ATPase and mechanics in pressure overload with digitalis treatment, cardiac, H253
phosphorylation, myocardial sarcoplasmic reticulum, H426
pressure-overload, myosin ATPase recovery, H711
Hypervitaminosis A
triglycerides, fatty liver, synthesis and release, E511
Hypocalcemia
red cell space, bone, femur, E6
Hypocapnia
water retention, antidiuretic hormone-induced, F291
Hypoglycemia
glucoprivic feeding behavior, E617
Hypophysectomy
protein turnover, skeletal muscle, E38
Hypotension
acute, cerebral arterial and arteriolar response, H371
hemodynamics, trigeminal and aortic vasodepressor responses, H67
hemorrhagic, baroreceptor resetting, time course, H552
reserpine, baroreceptor resetting, time course, H552
[Sar^1,Thr^8]angiotensin II, H447
short-term, baroreceptor resetting, time course, H552
Hypothalamic diabetes insipidus: *see* Diabetes insipidus
Hypothalamic effects
lipogenesis, E554
Hypothalamic extract, bovine
glucose utilization, adipocytes, E554
Hypothalamic-insular axis
glucose utilization, adipocytes, E554
Hypothalamic stimulation
arrhythmias, reflex mechanisms, H199
Hypothalamo-pituitary-adrenal axis
feedback inhibition, R46
Hypothalamus
antidiuretic hormone release, angiotensin II-stimulated, F135
Hypothalamus lesions, oxygen consumption and locomotor activity, neonatal, measurement, E532
parabrachial pons mediation of renal vasoconstriction, R223
periventricular preoptic, thirst and normal water economy, R122
ventromedial, obesity, intestinal bypass surgery, E389
Hypothermia
blood flow distribution, H706
Hypothyroidism
extensor muscle properties, C90
insulin secretion, adrenergic modulation, E106
Hypotonicity
luminal, isotonic fluid absorption, pars recta, F349
Hypoxemia
hemodynamics, in spontaneous hypertension, H275
Hypoxia
arterial, oxygen consumption, intestinal, E248
arterial, rubidium-86 extraction, E248
blood flow, cerebral (birds, duck), H230
cerebrovascular regulation, H582
erythrogenin, extrarenal, F510
heart performance, ischemia and physical training, H215
isocapnic, heart rate response, H129
tissue, cerebromicrocirculation, regulation, H582
vascular reactivity, lung, H186
vasoconstriction, lung (duck), R146
Hypozincemia
bacterial infection and, E399
metallothioneins, hepatic, E399

Ileum
contractile activity, prostaglandin E, E209
lymph flow, hyperosmolality, H14
osmotic conductance, H14
secretion, ouabain inhibition, E629
sodium-potassium-ATPase, E629
transport characteristics, newborn, E257
vascular resistance, hyperosmolality, H14
Iliac artery
series elasticity, muscle length effects, C146
Iliac blood flow: *see* Blood flow
Imidazole
electrophysiology and secretion, stomach (frog), E120
Immunity
parasite, myoelectric activity, intestinal, R188
Immunofluorescent antibody technique
renin localization, submaxillary gland and kidney, E480
Impedance
characteristic, carotid artery, H280
Incubation temperature: *see* Temperature
Indicator-dilution: *see also* Dye-dilution
capillary-myocardial exchange, coronary flow reduction, H679
nutritional and nonnutritional circuits, hindpaw, H384
vascular capacitance, intestinal, H7
Indocyanine green
hemorrhaged plasma volume restoration by gastrointestinal fluid, H80
vascular capacitance, intestinal, H7
vascular compliance, delayed, and fluid exchange, intestinal, H660
venous drainage, myocardial, H163
Indomethacin
pulmonary vascular response to ventilation, fetal (goat), H346
renal vascular response to prostaglandin inhibitors, H496
zinc absorption, E99
Infarction, myocardial
rubidium-86 reflow and uptake, H724
Infection, viral: see Viral infection
Inflammation
peroxidase activity, intestinal mucosa, R72
Information theory
thermodynamics, R3
Infusion: *see* specific subject or site
Ingestive behavior
thirst and normal water economy, periventricular preoptic hypothalamus effects, R122
Innovar sedation
circulatory filling pressure and vascular capacitance measurements, H94
Inotropy
heart: *see* Muscle, heart, contraction; *also* Myocardium
Insulin
adipocyte resistance, fatty acid synthesis, E182
binding, soleus muscle, lean and obese mice, E348
exercise and, E611
feeding behavior, glucoprivic, E617
feeding behavioral response, E20
extrapancreatic glucagon and glucose turnover, E213
glucose autoregulation, midterm fetal liver, E560
glucose loading (squirrel monkey), R20
glucose transport, fat cells, E112, E484
glucose turnover, nonsteady state measurements, E84
growth hormone and, E611
mimickers, glucose transport, fat cells, E484
monovalent cation transport (duck), C59
protein balance, regulation, fetal heart, E306
resistance, human growth hormone synthetic C-terminal fragments, E521
resistance, soleus muscle, lean and obese mice, E348
secretion, acid-base alterations, E426
secretion, adrenergic modulation dependent on thyroid states, E106
sodium-potassium-ATPase activity (duck), C59
sugar transport, ATP effects, soleus muscle, E407
sugar transport kinetics, heart muscle, E70
triglyceride secretion, exercise, E221
Insulin release
C-terminal fragments of human growth hormone, E527
fatty acid effects, pancreatic islets (ovine), E162
isolated islets, E527
potentiator, islets, E527
Insulinemia
portacaval diversion, adipose tissue, E579
Integrative physiology: *see* Physiology
Interspike voltage: *see* Voltage

Interstitial fluid: *see* Fluid
Intestinal adsorption
glucose, E629
in vivo, E54
sodium, E629
water, E629
zinc, prostaglandin E_2 role, E99
Intestinal bypass surgery
obese and lean mice, E389
Intestinal cells
epithelial, 3-*O*-methylglucose transport, phloretin and theophylline effects (chicken), C64
Intestinal fluid: *see* Fluid
Intestinal phase
gastric secretion, stimuli, E64
Intestinal rings
everted, fatty acid esterification, E236
Intestinal secretion
lipoproteins, very low density, E277
ouabain inhibition, E629
sodium-potassium-ATPase, significance, E629
Intestinal transport
3-*O*-methylglucose, epithelial cells (chicken), C64
phosphate, vitamin D effects (chick), E379
sham feeding and, E417
sugar (chicken), C64
Intestines
blood flow: *see* Blood flow
motility: *see* Motility
osmotic vasodilation, ileal, H14
oxygen consumption, hypoxia, E248
perfusion, sham feeding effects, E417
protein synthesis, E648
rubidium-86 extraction, hypoxia, E248
vascular capacitance using mean transit time of indicator, H7
vascular compliance, delayed, fluid exchange and, H660
vascular resistance, angiotensin and epinephrine effects (dogfish), R196
Intestines, small
circulation, histamine receptors, E370
disaccharidase rhythm, development, postnatal, E500
inflammation, mucosal, peroxidase activity, R72
myoelectric activity in parasitism, R188
transport characteristics, ileal, newborn, E257
Intralipid
triglyceride secretion, exercise, E221
Intrinsic nerves
electromyogram, colon, E641
Inulin
^{14}C-labeled, brain barrier system (salamander), R52
Iodide
active transport, (teleosts), R61
brain barrier systems (teleosts), R61
transport, thyroidal, organic binding blocked (chicken), E177
Iodine
dietary, accumulation, thyroid (chicken), E168
dietary, transport, thyroidal, organic binding blocked (chicken), E177
kinetics, thyroidal (chicken), E168, E177
Iodo[^{14}C]antipyrine
blood flow measurement, cerebral, H59
Ionic basis
electrical activity, cardiac tissues, H101
Ionic currents: *see* Currents
Ions
concentration, transepithelial potential difference, distal tubule, F182
conductance parameters, repetitive firing and (mollusc), C155
Ions, transport
ATP-independent, plasma membrane, F89
bone (embryonic chick, newborn rat), C41
bumetanide effects, cornea (bullfrog), F297
divalent, renal peritubular surface (teleost), F522
ileum, newborn, E257
multi-ionic solutions, structured tissues, mathematical modeling, F215
Iproveratril
α-adrenoceptor affinity, cutaneous veins, H330
Ischemia
cephalic, coronary regulation, newborn (lamb), H173
cerebral microcirculation, regulation, H582
renal, acute failure, F171
respiratory acidosis, H40
Ischemia, myocardial
adenosine triphosphate synthesis, H620
blood flow depression, regional H653
blood flow, quantitation with microspheres and diffusible indicator, H487
capillary-myocardial exchange, H679
coronary occlusion, hydrogen peroxide effects, H28
Frank-Starling mechanism, H338
graded (pig), H597
heart performance, after physical training, H215
mechanical function, H620
oxygen consumption, activation sequence, H260
regional, cardiac pump performance during exercise, H157
wall thickening, H653
Isocapnic hypoxia: *see* Hypoxia
Isocitrate dehydrogenase
respiratory acidosis, perfused heart, H40
Isoleucine
angiotensin II, tubular handling, F325
Isometric contraction
smooth muscle: *see* Muscle, smooth
Isoproterenol
adrenergic inotropic and chronotropic effects, cardiac, H525
prostoglandin E synthesis and water flow, bladder (toad), F532
vascular capacitance, intestinal, H7
Isorenin
central and peripheral angiotensin blockade, hypertension, H629
Isorenin-angiotensin system
brain, drinking inhibition, F41
Isotonic fluid: *see* Fluid
Isovolumic contraction: *see* Muscle, heart, contraction
Isovolumic function
left ventricular, H361

Jejunal transport
sham feeding, E417
Jejunoileal bypass
obese and lean mice, E389
Jejunum
fatty acid esterification, E236
Juxtaglomerular apparatus
chronic tubular obstruction (*Necturus*), F112

Kallikrein
activity, renal, F36
Ketoacids
amino acid oxidation, carnitine effects, liver and skeletal muscle, E494
Ketogenesis
fatty liver, in hypervitaminosis A, E511
glucose homeostasis, newborn, E129
Kidney
adenylate cyclase, vasopressin responsiveness, newborn, F16
aldosterone metabolism, E472
p-aminohippuric acid transport, F80
ammonia excretion, F514
ammoniagenesis, F235
anatomical-functional factors, F207
autoregulation, whole kidney and single nephron studies, F357
bicarbonate reabsorption, renal insufficiency, F472
blood flow: *see* Blood flow
calcium-45 desaturation, R29, R34
circulation: *see* Circulation
clearance: *see* specific substance
comparative physiology (avian), F270
comparative physiology (reptile), F68, F238
2-deoxy-D-galactose secretion (flounder), F424
[des-Asp^1]angiotensin I, F130
development, angiotensin-converting enzyme, R141
dynamics, exercise and excitement (baboon), H210
electrolyte excretion (sheep), F371
erythropoietic factor, nephrectomy-hypoxia time increase, F510
excretion, afferent signal, H21
excretion, blood volume expansion, H21
function, acute cardiac tamponade, F117
gluconeogenesis, F415
glucose metabolism, phlorizin and, F270, F485
glucose metabolism, regional, F415
glutamine carbon metabolism, F123
glutamine metabolism (sheep), E197
glutamine transport and metabolism, mitochondrial, rapid-mixing, rapid-filtration technique, F514
hypertension: *see* Hypertension
innervation: *see* Renal nerves
insufficiency, F472
ischemia: *see* Ischemia
kallikrein activity, F36
infusion, renin release, F10
kinins, formation, nephron, F36
membranes: *see* Membranes
metabolism, phlorizin effects, F485
metallothioneins, E282
microanatomy, F207
mineralocorticoid receptors, sodium and water retention, F490
nephrectomy: *see* Nephrectomy
organic acid transport, F80
perfused, renin release, F376
phosphate transport, phosphate deprivation and, F199
plasma flow: *see* Plasma flow
potassium excretion, electrolyte infu-

Kidney (*continued*)
sion studies (sheep), F371
prostaglandins: *see* Prostaglandins
renin: *see* Renin
salt load, intravenous (starling), F270
sodium retention, nonsteroidal anti-inflammatory drug effects, F490
sugar transport (flounder), F424
urate, muscular dystrophy, E421
uric acid synthesis (chicken), F446
vascular response to bradykinin, histamine, and nitroglycerin, H496
vascular responses to renal nerve stimulation and intra-arterial drug administration, continuous measurement, H219
vasoconstriction: *see* Vasoconstriction
volume expansion: *see* Volume expansion
water retention, nonsteroidal anti-inflammatory drugs, effects, F490
zinc redistribution, E282
Kidney cells
calcium-45 desaturation, R29, R34
phlorizin action, tubular membrane, F485
Kidney cortex
glucose carrier, sodium ion-dependent, E1
organic anion transport, SITS effects, F302
superficial vasculature, F207
Kidney failure, acute
cellular integrity, F171
pathophysiology, current concepts, F171
Kidney medulla
adenylate cyclase, vasopressin responsiveness, newborn, F16
central core model, comparisons (rabbit and rat) F402
concentration gradient, F402
plasma membrane, distinct, purification, F247
volume-flow rate, F402
Kidney papilla
prostaglandin biosynthesisis, stimulation by hypertonic mediums, F64
Kidney tubules
angiotensin II handling, amino acids and, F325
calcium transport, peritubular surface (teleost), F522
2-deoxy-D-galactose secretion (flounder), F424
feedback: *see* Feedback
glutamine carbon metabolism, F123
microenvironment, F207
obstruction, chronic (*Necturus*), F112
phlorizin action, membranes of proximal cells, F485
phosphate: *see* Phosphate
physical properties, Henle's loop, F54
pump-leak systems, F480
sugar transport (flounder), F424
Kidney tubules, collecting
adenylate cyclase, vasopressin responsiveness, newborn, F16
bicarbonate absorption, F141
morphology, F146
Kidney tubules, distal
angiotensin II handling, amino acids and, F325
electrophysiology (reptile), F238
potassium regulation, F146
potassium secretion, comparison with colon, F48
transepithelial potential difference, F182
transepithelial potentials, generation (reptile), F238
transepithelial transference number, F182
Kidney tubules, proximal
angiotensin II handling, amino acids and, F325
cell shape and water readsorption, relation, phenomenological model, F308
configuration, F207
fluid absorption, F68, F279, F381
glucose transport, F279
glucose-phlorizin interactions. F279
phosphate transport during phosphate deprivation, F199
sodium absorption (snake), F68
transport kinetics, F279
volume absorption, F349
Kidney tubules, proximal convoluted
solute transport, leaked load, F480
volume adsorption, F349
Kidney tubules, proximal straight
hydraulic conductivity coefficient, F340
volume absorption, F340
Kinetics: *see* specific site or subject
Kinins
formation, nephron, F36
Komarov esophagostomy: *see* Esophagostomy

Lactase
circadian rhythm, postnatal development, small intestine, E500
Lactate
gradients, calvaria (embryonic chick, newborn rat), C41, C51
heart performance, ischemia and physical training, H215
metabolism, paraquat-perfused lung, E653
production, calvaria (embryonic chick, newborn rat), C41, C51
Lactate dehydrogenase
highest activity known, control (skipjack tuna), R136
Lactation
inhibition, mammary gland, C177
polyamine, blood levels, E451
Lactic acid
production, calvaria, C41, C51
Lactose
secretion, mammary gland, inhibition by colchicine and vincristine, C177
Langerhans' islets: *see* Pancreatic islets
Languages, hierarchic
thermodynamics, R3
Lanthanum
calcium-45 efflux, aortic, C139
Laryngeal nerve, superior
cardiovascular-respiratory reflex interactions (monkey), H293
Lead
excretion, biliary, metallothionein effects, E47
Leaked load
solute transport, tubular, F480
Lecithin
secretion, bile acid structure and, E637
Length-tension relations
heart muscle: *see* Muscle, heart
smooth muscle: *see* Muscle, smooth
Leucine
oxidation, carnitine effects, liver and skeletal muscle, E494
Leukocytes
polyamines, pregnancy and lactation, E451
Ligand
zinc-binding, E99
Ligation, coronary
prostaglandin $F_{2\alpha}$ and, H718
ventricular activation sequence effects on myocardial oxygen consumption, H260
Light
circadian rhythm synchronization (squirrel monkey), R130
constant, circadian rhythm, adrenocortical, E515
continuous, sexual maturation, male, E262
Limb
electromyography, bipolar electrode, for small animals, C198
Lipids
absorption, lymphatic, E54
liver, hypervitaminosis A, E511
metabolism, adipose tissue, portacaval diversion, E579
metabolism, paraquat-perfused lung, E653
plasma, hypervitaminosis A, E511
secretion, biliary, bile acids and, E637
transport, polyunsaturated fatty acids and, E54
Lipogenesis
adipose tissue, portacaval diversion, E579
genetic obesity, development, E568
hypothalamic effects, E554
Lipolysis
adipose tissue, portacaval diversion, E579
β-Lipoprotein
cerebrovascular response to 5-hydroxytryptamine (baboon), H300
Lipoproteins, very low density
secretion, intestinal, E277
Liposomes
sonicated, reconstituted from glucose carrier, renal cortex, E1
Lithium
hypercalciuria, E294
prostaglandin E synthesis and water flow, bladder (toad), F532
Liver
amino acid oxidation, carnitine effects, E494
bile secretion, hemodynamic effects, E584
enzymes, glucose regulation, E13
fatty, hypervitaminosis A, E511
fatty, triglycerides, synthesis and release, E511
genetic obesity, development, E568
gluconeogenesis, fasting and adrenalectomy effects (chicken and carnivorous bird), R115
glucose production, midterm fetus, E560
glucose uptake, autoregulation, midterm fetus, E560
glucose utilization, C122
glutamine metabolism (sheep), E197
glycogen metabolism, diabetes, E13
lysosomes, occlusion shock, splanchnic artery, H1
metallothioneins, hypozincemia associated with bacterial infection,

E399
metals, excretion, metallothionein effects, E47
metals, uptake, metallothionein effects, E47
mitochondria: *see* Mitochondria
palmitate, labeled, uptake, role of intracellular binding sites, E542
protein synthesis, E648
scan: *see* Scanning
urate, muscular dystrophy, E421
zinc redistribution, E282
Liver acinus
cytochrome *P*-450, induction in hepatocytes, C102
Liver cells: *see also* Hepatocytes
culture, C122
differentiated functions, C122
Load
leaked, solute transport, tubular, F480
Loading: *see also* Volume loading; Preload; Afterload: Pressure overload; Volume overload
chloride reabsorption, nephron, F97
glucose, unrestrained conditions (squirrel monkey), R20
salt, hypertension, spontaneous, F29
salt, renal response (starling), F270
sodium, renin release, F376
Locomotor activity
monosodium glutamate-induced obesity, neonatal, measurement, E532
Locus ceruleus
hypothalamically induced renal vasoconstriction, R223
Loop: *see* Carotid loop; Henle's loop; Open-loop gain
Lumicolchicine
lactose inhibition, mammary gland, C177
Lung
blood flow: *see* Blood flow
capillary membrane, filtration coefficient, H266
development, angiotensin-converting enzyme, R141
drug absorption, neonatal, C191
inhomogeneous (duck), R146
paraquat perfusion, glucose metabolism, E653
perfusion, distribution (duck), R146
permeability: *see* Permeability
pressure: *see* Pressure
vascular bed, dihomo-γ-linolenic acid, H133
vascular contraction, prostaglandin effects (canine, bovine), H139
vascular reactivity, platelets, H186
vascular reactivity, red blood cells, H186
vascular response to ventilation, indomethacin effects, fetus (goat), H346
Lymph
protein concentration, histamine-catecholamine interaction, H180
triglycerides, E277
Lymph flow
histamine-catecholamine interaction, H180
Lymphatic absorption
vitamine K_1, E54
Lysosomes
enzymes, fetal heart, E306
liver, occlusion shock, splanchnic artery, H1

Macromolecules
negatively and positively charged, glomerular permselectivity, F455
Macula densa
autoregulation, renal, F357
chronic tubular obstruction (*Necturus*), F112
feedback: *see* Feedback
renin secretion, F10
Magnesium
flux, irreversible contracture, myocardium, C115
metabolism, fluoride and, E343
metabolism, potassium depletion, F466
sodium transport, bladder (toad), F192
Magnesium-ATPase
hemodynamic effects, liver, E584
Malate-aspartate cycle
respiratory acidosis, perfused heart, H40
Malignancies
visceral, protein synthesis, E648
Maltase
circadian rhythm, postnatal development, small intestine, E500
Mammary gland
lactose secretion, inhibition by colchicine and vincristine, C177
Manganese
excretion, biliary, metallothionein effects, E47
Mannitol
absorption, pulmonary, neonatal, C191
cardiac pump performance, ischemica and exercise, H157
clearance, biliary, induced cholereses, E146
Manometry
rapid pull-through, esophageal, E157
Mass spectrometry: *see* Spectrometry
Maternity: *see* Placenta; Fetus; Pregnancy
Mathematical biology: *see* Biology
Mathematical models: *see* Models; *also* the specific subject or site
Maturation
angiotensin-converting enzyme, lung and kidney, R141
autonomic, sinus node, H412
sexual, male, in continuous light, E262
Meals: *see* Feeding
Meclofenamate
renal vascular response to prostaglandin inhibitors, H496
vascular reactivity, lung, red blood cells and platelets in, H186
Medullary bone: *see* Bone
Melanocyte-stimulating hormones
permeability, plasma/cerebrospinal fluid barrier, E327
Melanotropic peptides: *see* Peptides
Membrane
alveolar-capillary, filtration coefficient, H266
basal-lateral, sugar transport, kidney (flounder), F424
basement, Henle's loop, physical properties, F54
basolateral, organic anion transport, SITS effects, renal cortex, F302
oxygenator: *see* Oxygenator
permeability: *see* Permeability
potentials: *see* Potentials
transport, energetics, gastric, E445
transport, thermodynamics, R3
Membrane, plasma
distinct, renal medulla, F247
electrochemical sodium ion gradient, F89
heterogeneity, F89
ion transport, ATP-independent, F89
transport, F89
Mepyramine
mesenteric circulation, E370
Mercury
excretion, biliary, metallothionein effects, E47
Mesangial cell
dysfunction, glomerular permselectivity, F455
Mesentery
blood flow: *see* Blood flow; Circulation
dynamics, exercise and excitement (baboon), H210
oxygen consumption and rubidium-86 extraction, arterial hypoxia, E248
Mesotubarium
stiffness, dynamic, effect of isometric length, C14
Metabolic acidosis: *see* Acidosis
Metabolic control
skeletal muscle capillaries, reactive hyperemia, H352
Metabolic depression
cerebral circulatory response (baboon), H74
Metabolism: *see also* specific site and subject
coronary blood flow and (pig), H597
fat cell, spontaneously obese rat, E182
postmortem, brain removal technique, E365
Metabolites
accumulation, myocardial, reactive hyperemia, H625
O-methylated, deaminated, norepinephrine metabolism, H235
washout, reactive hyperemia, H625
Metallothionein
biological function, E282
hepatic, hypozincemia associated with bacterial infection, E399
induction by stresses, E282
metals, biliary excretion, E47
Metals
biliary excretion, E47
Methylglucose
efflux, fat cells, E484
3-Methylglucose
fetomaternal transfer, placental (sheep), E32
α-Methylglucoside
fetomaternal transfer, placental (sheep), E32
Methylprednisolone
glomerular filtration rate, F166
α-Methyltyrosine
adrenal medullary function, development (swine), E137
Metiamide
mesenteric circulation, E370
Michaelis-Menten constant
angiotensin-converting enzyme, developing lung and kidney, R141
Microanalysis
quantitative, fluids, F255
Microanatomy: *see* Histology

Microbubble elimination
membrane oxygenators (sheep), H646
Microcirculation
cerebral, regulation, tissue hypoxia, H582
reactive hyperemia, skeletal muscle, H352
Microdrop analysis
fluids, with energy-dispersive x-ray spectrometer on a scanning electron microscope, F255
Microelectrodes: *see also* Electrodes
glass, high resistance, controlled bending, C56
glass, high-resistance, intracellular recording, C56
ion-selective, F261
potassium ion-specific, salivary gland potassium transport in vivo, E79
sodium and potassium, intracellular activities, F261
Microenvironment
tubular, F207
Microforge
high resistance glass microelectrodes, controlled bending, C56
Microinjection
angiotensin II tubular handling, amino acids and, F325
Micromanometers
mitral valve opening and closure, H146
Microperfusion
Henle's loop, physical properties, F54
Microprobe
microdrop analysis of fluids, technique, F255
Micropuncture
acute renal failure, F171
autoregulation, whole kidney and single nephron, F357
osmoregulation, nauplius (shrimp), R216
phosphate reabsorption, nephron, F287
phosphate reabsorption, renal tubular, calcium effects, F22
potassium regulation, tubular sites, F146
tubuloglomerular feedback responses, F154
Microscope
compound, bending glass microelectrodes for, C56
Microscopy
in vivo, histamine receptors, mesenteric, E370
Microscopy, electron
freeze-fracture, antidiuretic hormone-induced particle aggregation, urinary bladder (toad), F461
scanning, microdrop analysis of fluids, F255
Microsomes
calcium uptake, aorta, H508
phosphorylation, aortic, cyclic AMP and, H508
Microspheres: *see also* specific subject or site
and diffusible indicator, quantitation of collateral and ischemic flows, H487
blood flow distribution, hypothermia, H706
blood flow distribution, lung (duck), R146
cerebral autoregulation during renal hypertension, H35
procainamide determination, myocardium, H399
regional cardiac effects of ischemia and reperfusion, H653
rubidium-86 reflow and uptake after coronary occlusion, H724
Microtubules
milk inhibitors, mammary gland, C177
Microvascular control
myocardial Po_2 distribution, H361
Microvascular interaction
histamine-catecholamines, in edema, H180
Milk
secretion, microtubular inhibitors, C177
Mineralocorticoids
hypertension, spontaneous, F29
prostaglandin E synthesis and water flow, bladder (toad), F532
receptors, renal sodium and water retention, F490
Mitochondria
cytochrome *c*: *see* Cytochrome *c*
oxidation-reduction state, NAD, homeostatic regulation, C82
Mitochondria, heart
cytosols, energy relationships, C73
oxidation-reduction state of NAD, C73
Mitochondria, kidney
glutamine transport and metabolism, rapid-mixing, rapid-filtration technique, F514
Mitochondria, liver
amino acid oxidation, carnitine effects, E494
Mitochondria, skeletal muscle
calcium uptake, cold acclimation, C7
characterization (frog), C1
Mitral leaflet
motion, atrial and ventricular pressures, H146
Mitral valve
opening and closure, atrial and ventricular pressure, H146
Models: *see also* specific subject or site
action potential, cardiac, measurement of maximum upstroke velocity with sample/hold peak detector, H312
acute renal failure, F171
artificial, glucose carrier, renal cortex, E1
blood flow distribution, lung (duck), R146
compartmental: *see* Compartments
computer, arterial pressure control system, R104
computer, physiological systems, R161
dispersion, glucose turnover, nonsteady state, E84
gastric mucosa, acid secretion and motility, simultaneous monitoring (kitten, ferret), E319
glutamine carbon, theoretical treatment of data on isotope distribution, F123
good manners in good modeling, R161
hypertrophy, left ventricular, concentric, H515
nonhypotensive shock, H80
osmolality, ileal, H14
phenomenological, relating cell shape to water reabsorption, proximal nephron, F308
thermodynamics, field and circuit, R3, R85
venous drainage, myocardial, H163
Models, mathematical
capillary-tissue fluid exchange, H52
multiple regression, inotropic state, cardiac, indices, H562
regression analysis, trigeminal and aortic vasodepressor responses, H67
renal medulla, central core, F402
mathematical, physiological systems, R161
transport in structured tissues, corneal epithelium, F215
Modulus
incremental, arterial, H533
Molecular charge
glomerular permselectivity, F455
Molecular size
glomerular permselectivity, F455
Monoamine oxidase
cerebrovascular response to 5-hydroxytryptamine (baboon), H300
Monoenoic precursor
pulmonary vascular bed, H133
Monoglyceride pathway
fatty acid esterification, E236
Monosodium glutamate
obesity, neonatal oxygen consumption and locomotor activity, measurement, E532
Morphology
carotid artery, H280
cell shape and water reabsorption, relation, proximal nephron, F308
collecting duct, F146
Motility
cholecystokinin effects, gastric, E375
gastric mucosa (kitten, ferret), E319
gastrointestinal hormone effects, duodenal (opossum, cat), E60
parasitism, intestinal, R188
prostaglandin E, ileal, E209
prostaglandin E, intestinal, E204
vasoactive intestinal polypeptide, gallbladder, E44
Motor activity
interdigestive, Heidenhain pouch, E333
Mucosa: *see* site
Multiple regression technique: *see* Models, mathematical
Muscarinic receptor: *see* Receptors
Muscle
action potentials: *see* Potentials
cholinergic and histaminergic reflex vasodilation, gracilis muscle, H305
contractions, interdigestive, Heidenhain pouch, E333
dehydrogenases (tuna), R136
elastic recoil, passive, intestinal, E660
electromyography: *see* Electromyography
female sex hormones, esophageal sphincter (opossum), E243
gastrointestinal hormones, duodenal (opossum, cat), E60
glutamine metabolism (sheep), E197
Muscle cells, heart: *see also* Heart cells
dimensions and volume, H123
growth, H123
normal and hypertrophic, H123
Muscle cells, skeletal
pH, calcium ion release (frog), C110
Muscle, heart: *see also* Myocardium
acetylcholine and vagal stimulation, differential sensitivity, H460

buffer values, F432
chronotropism, adrenergic effects, H525
elasticity, passive, papillary muscle, H416
force-velocity relationship, exercise-trained, H421
hypertrophy: *see* Hypertrophy
length-tension curves, left ventricular hypertrophy, H88
length-tension relation, exercise-trained, H421
relaxation, isovolumic, mitral valve opening and closure, H146
stiffness, constant, papillary, H416
stiffness, diastolic, papillary, H416
stiffness, diastolic, left ventricular, H392
stress-strain relation, diastolic, papillary, H416
sugar transport kinetics, insulin effects, E70
Walton-Brodie arch, left ventricular, H88
Muscle, heart, contraction
acetylcholine and vagal stimulation effects, H460
contractile force, Purkinje fibers, strophanthidin toxicity, H477
contractile potential, exercise-trained papillary muscle, H421
contractile state of hypertrophied left ventricle, volume overload, H88
contractility, water and air breathers (trout, turtle), R155
inotropic response, acetylcholine and vagal stimulation, H460
inotropic state, hemodynamic factors, H562
inotropic state, indices, H562
inotropic state, sympathetic stimulation, H562
inotropism and chronotropism, adrenergic effects, H525
inotropy, carbon dioxide, water and air breathers (trout, turtle), R155
isovolumic ventricular, mitral valve opening and closure, H146
physical training, H608
protein kinase regulation, H638
Muscle, papillary: *see* Muscle, heart
Muscle, skeletal: *see also* Muscle cells, skeletal
amino acid oxidation, carnitine effects, E494
buffer values, F432
calcium uptake, cold acclimation, C7
hypertonic effects (frog), C181
insulin binding, soleus muscle, E348
interstitial fluid space (frog), C181
mitochondria: *see* Mitochondria
pH, intracellular, association with calcium ion release (frog), C110
protein: *see* Protein
reactive hyperemia, capillary, arterial pressure effects, H352
respiration (frog), C1
sucrose, ^{3}H-labeled, compartments (frog), C181
thyroidectomy, electrical and mechanical characteristics, C90
transverse tubules, compartments (frog), C181
triadic junction (frog), C181
Muscle, smooth
adrenergic influences, oviduct, C96
contractile activity, prostaglandin E, E209
contractile mechanisms, mesotubarium, C14
contractility, gallbladder, E44
contraction, isometric, mesotubarium, C14
elastic properties, mesotubarium, C14
electromyogram, colon, intrinsic nerves, E641
5-hydroxytryptamine, lower esophageal sphincter (opossum), E273
length, isometric, mesotubarium, C14
length-tension curve, mesotubarium, C14
motility: *see* Motility
oscillatory perturbation, mesotubarium, C14
ovarian hormones, oviduct, C96
pentagastrin, lower esophageal sphincter (opossum), E301
prostaglandin E, intestines, E204
quick release, mesotubarium, C14
quick stretch, mesotubarium, C14
spike bursts, oviduct, E430, E439
steroid hormones, oviduct, C96
stiffness, dynamic, mesotubarium, C14
sugar transport, insulin-stimulated, ATP effect, soleus muscle, E407
vagal inhibitory pathway, esophageal sphincter (opossum), E273
vasoactive intestinal polypeptide, gallbladder, E44
Muscle, smooth, vascular
arginine-vasopressin, arterial, H167
calcium uptake, microsomal, aorta, H508
calcium-45 efflux, aortic, C139
connective tissue composition, arterial, H533
contractility, cyclic AMP, aorta, H508
contraction, isometric, arterial, C146
contraction, prostaglandins and, H139
cyclic AMP, role, H508
elastic constants, anisotropic, H533
elastic modulus, incremental, carotid artery, H533
mechanics, arterial, H542
mechanics, muscle length effects, arterial, C146
mechanics, passive, arterial, H533
microsomal phosphorylation, aorta, H508
series elasticity, regional variation, arterial, H542
series elasticity, muscle length effects, arterial, C146
stress development, active, arterial, H542
stress-strain relations, arterial, H542
stress-strain relations, arterial wall, H533
stress-strain relations, carotid artery, H280
Muscular dystrophy
homozygous and heterozygous mice, E421
uric acid metabolism, E421
Myocardial depressant factor
occlusion shock, splanchnic artery, H1
Myocardium: *see also* Muscle, heart
adenosine triphosphate synthesis, oxygen deficiency, H620
adenylate cyclase activity, H608
blood flow: *see* Blood flow
capillary-myocardial exchange, coronary flow reduction, H679
chord length, adrenergic inotropic and chronotropic effects, H525
contractile function, physical training effects, H608
contractile proteins, pressure-overload hypertrophy and failure, H711
contractility, adrenal contribution, newborn (lamb), H173
contractility, nitroglycerin, H244
contractility, regional, coronary occlusion, H653
contracture, magnesium fluxes, C115
energy state, cytosol-mitochondrion relationship, C73
hypertrophy; *see* Hypertrophy
inotropy, carbon dioxide, in water and air breathers (trout, turtle), R155
ischemia: *see* Ischemia
mechanical function, oxygen deficiency, H620
mechanics, ischemia and physical training, H215
metabolism, ischemica, H215
metabolite accumulation, reactive hyperemia, H625
oxygen: *see* Oxygen
oxygenation: *see* Oxygenation
physical training, H608
procainamide, radiochemical determination, H399
reactive hyperemia: *see* Hyperemia
venous drainage, quantitation, H163
venous interconnections, H163
venous pressure, H163
wall thickness, coronary occlusion, H653
Myocytes: *see* Muscle cells
Myoelectric activity
intestinal, parasitism, R188
Myogenic control
skeletal muscle capillaries, reactive hyperemia, H352
Myoglobin
function, fluorocarbon-perfused heart, H 567
magnesium fluxes, myocardial contracture, C115
Myosin ATPase: *see* Adenosine triphosphatase

Naproxen

prostaglandin E synthesis and water flow, bladder (toad), F532
Nasopharynx
cardiovascular-respiratory reflex interactions (monkey), H293
Natriuresis
aldosterone effects, spontaneous hypertension, F29
Nauplius
osmoregulation (shrimp), R216
Neck organ
osmoregulation (shrimp), R216
Nematode infection
intestinal, myoelectric activity, R188
Nephrectomy
drinking inhibition, F41
erythrogenin, extrarenal, F510
unilateral, arterial pressure-urinary output relations, R98
unilateral, potassium regulation, tubular sites, F146

Nephron
chloride reabsorption, segmental, as a function of load, F97
distal, kinins, formation, F36
filtration: *see* Filtration
function, potassium effects, F381
perfusion, feedback responses, F154
phosphate reabsorption, heterogeneity, F287
proximal, cell shape and water reabsorption, phenomenological model, F308
single, autoregulation, F357
superficial, anatomical patterns, F207
superficial, tubular-vascular relationships, F207
superficial and deep, phosphate transport, F287
Nephrotic syndrome
glomerular permselectivity, F455
Nerves
conductivity: *see* Conductivity
Neural control
nutritional and nonnutritional circuits, hindpaw, H384
spinal sympathetic discharge, H223
Neural substrates
body fluid homeostasis, R122
Neurohypophysis
antidiuretic hormone release, angiotensin II-stimulated, F135
Neurons
adrenergic, smooth muscle, oviduct, C96
inhibitory, nonadrenergic and noncholinergic, lower esophageal sphincter (opossum), E273
repetitive firing frequency, temperature and (mollusc), C155
Neurophysiology
contributions of the communication sciences, R159
Neurotransmitters: *see also* Transmission
adrenocorticotropin feedback inhibition, R46
norepinephrine, E252
Newborn
adrenal medullary function (swine), E137
aerobic glycolysis, bone, C41, C51
angiotensin-converting enzyme, lung and kidney, R141
cardiac output (sheep), H520
cerebral blood flow, oxygen consumption and, R209
circadian rhythm, sucklings, development, E500
disaccharidase circadian rhythm, small intestine, E500
drug absorption, pulmonary, C191
glucose homeostasis, E129
obesity, genetic, development, E568
obesity, monosodium glutamate-induced, oxygen consumption and locomotor activity, measurement, E532
sinus node response to atropine and propranolol, H412
sodium deprivation, subsequent adult thirst and salt preference, F59
sodium metabolism, F59
vasopressin, adenylate cyclase responsiveness, renal, F16
water metabolism, F59
Nexal junctions
heart, viral effects, embryo (chick), C170
Nicotinamide adenine dinucleotide
oxidation-reduction, mitochondria, heart, C73
Nitrite
fluorocarbon-perfused heart, H567
inhibition, electrophysiology and secretion, stomach (frog), E120
Nitrogen-15
fibrinogen half-life, measurements, E504
Nitroglycerin
blood flow distribution, regional, H244
cardiac function, H244
renal vascular responses to prostaglandin inhibitors, H496
Noise
thermodynamics, R3
Nonadrenergic neuron
lower esophageal sphincter (opossum), E273
Nonapeptides
renal and adrenal responses, F130
Noncholinergic neuron
lower esophageal sphincter (opossum), E273
Nonelectrolytes
brain barrier systems (salamander), R52
polar (salamander), R52
Nonhypotensive shock
restoration of hemorrhaged plasma volume by gastrointestinal fluid, H80
Nonshivering thermogenesis: *see* Thermogenesis
Nonsteroidal anti-inflammatory agents: *see* Anti-inflammatory agents
Norepinephrine
α-adrenoceptor affinity, cutaneous veins, H330
carotid artery mechanics, H280
coronary regulation, newborn (lamb), H173
efflux, basal, saphenous vein, H235
hormone and neurotransmitter, E252
hyperresponsivity, spontaneous hypertension, H690
metabolic clearance rate, E252
metabolism, glycol metabolites and, H235
metabolism, saphenous vein, H235
plasma half-time, E252
production rate, E252
prostaglandin E synthesis and water flow, bladder (toad), F532
release, evoked, saphenous vein, H235
secretion, adrenal (bovine), E600
series elasticity, arterial smooth muscle, C146
vascular capacitance, intestinal, H7
vascular compliance, delayed, and fluid exchange, intestinal, H660
Normocapnia
blood flow, cerebral (birds, duck), H230
5′-Nucleotidase
hemodynamics, liver, E584
Nucleotides, cyclic
cell suspension cultures, growth regulation, C131
protein kinase dependence, interaction of acetylcholine and epinephrine, H432
Nucleus
parabrachial, renal vasoconstriction and, R223
supraoptic, antidiuretic hormone release, angiotensin II-stimulated, F135
Nutrients
depletion, cell cultures, C131
Nutrition: *see* Feeding

Obesity
genetic, development, pre- and postweaning, E568
insulin binding, soleus muscle, E348
intestinal bypass surgery, E389
monosodium glutamate-induced, oxygen consumption and locomotor activity, neonatal, measurement, E532
spontaneous, fat cell metabolism, E182
Occluders
pulmonary artery, for measurement of circulatory filling pressure and vascular capacitance, H94
Occlusion, coronary
cardiac pump performance during exercise, H157
collateral and ischemic flow quantitation with microspheres and diffusible indicator, H487
hydrogen peroxide effects, H28
reactive hyperemia, H625
regional blood flow depression, H653
rubidium-86 reflow and uptake, H724
wall thickening, H653
Occlusion shock
splanchnic artery, dopamine action, H1
Occlusive thrombosis: *see* Thrombosis
Octapeptide
cholecystokinin, gastric emptying inhibition, E375
Ontogenesis
adrenal medulla (swine), E137
Open-loop gain
arterial pressure control system, R104
Organic acid
transport, renal, F80
Organic anions: *see* Anions
Orthophosphate, inorganic
intracellular, homeostatic regulation, C82
Oscillatory perturbation
mesotubarium, C14
Osmolarity
prostaglandin biosynthesis, renal papilla, F64
Osmoregulation
nauplius (shrimp), R216
renal tubules (teleost), F522
Osmotic conductance
ileum, H14
Osmotic threshold
vasopressin release (sheep), E339
Osmotic vasodilation
intestinal, H14
Osmosis, water: *see* Water
Ouabain
α-adrenoceptor affinity, cutaneous veins, H330
bicarbonate absorption, collecting tubules, F141
cardiac pump performance, ischemia and exercise, H157
sodium ion transport, stomach (mammalian), E228
sodium-potassium-ATPase inhibition, intestinal, E629
transepithelial potentials, distal tubule (reptile), F238

Ovarian hormones
  smooth muscle, oviduct, C96
Ovarian steroids: *see* Steroids
Ovariectomy
  vitamin D metabolism (quail), E622
Overload: *see* Pressure overload; Volume overload
Oviduct
  adrenergic influences, C96
  spike bursts, estrogen and progesterone effects, E439
  spike bursts, ovulation effects, E430
Ovulation
  spike bursts, oviduct, E430
Ovum
  transport, spike bursts, E430, E439
Oxidation
  amino acids, carnitine effects, liver and skeletal muscle, E494
Oxidation-reduction
  cytochrome *c*, homeostatic regulation, C82
  mitochondrial NAD, homeostatic regulation, C82
  pyridine nucleotide, perfused heart, H40
  regulation (tuna), R136
Oxidative phosphorylation: *see* Phosphorylation
Oximetry, ear
  heart rate response to isocapnic hypoxia, H129
Oxonic acid
  uric acid metabolism, muscular dystrophy, E421
Oxygen: *see also* Hemoglobin-oxygen
  exchange, totally perfused trout, R201
  deficiency, myocardial, reactive hyperemia, H625
  extraction, myocardial, coronary autoregulation, H361
  metabolic rate, cerebral, neonatal, R209
  pressure, myocardial distribution, coronary autoregulation, H361
  pressure, venous, coronary autoregulation, H361
  saturation, arterial, heart rate response, H129
  tension, arterial, hydrogen peroxide, H28
  transport, 2,3-diphosphoglycerate binding by spectrin, C36
Oxygen consumption
  bumetanide effects, cornea (bullfrog), F297
  cerebral blood flow, neonatal, R209
  gastric acid inhibition, E445
  hemodynamics, liver, E584
  hypoxemia and spontaneous hypertension, H275
  intestinal, hypoxia, E248
  monosodium glutamate-induced obesity, neonatal, measurement, E532
  myocardial, activation sequence effects, R260
  myocardial, adrenals and, newborn (lamb), H173
Oxygen-hemoglobin affinity
  2,3-diphosphoglycerate binding by spectrin, C36
Oxygenation
  myoglobin function, myocardial, H567
Oxygenators, membrane
  microbubble elimination during priming, biocompatibility results (sheep), H646
  platelet preservation (sheep), H646
  surface denucleation (sheep), H646
  vacuum priming (sheep), H646
Oxytocin
  prolactin powder, identification, F318
  prolactin preparations, contamination, F318

Pacemaker
  atrial, ectopic, during exercise, H465
  atrial, subsidiary, and sinoatrial node function, comparison, H465, H471
  cardiac, exercise and autonomic blockade effects in absence of sinoatrial node, H465
  cardiac, location, H465
  hierarchy, H471
  subsidiary, autonomic control, H465
Pacing
  atrial, adrenergic effects, H525
  atrial, myocardial oxygen consumption, H260
  ventricular, myocardial oxygen consumption, H260
Palmitate
  incorporation, fatty liver, hypervitaminosis A, E511
  uptake, liver, intracellular binding sites, E542
Palmitoyl-CoA synthetase
  fatty liver, hypervitaminosis A, E511
Pancreas
  bicarbonate secretion, E286
  cholecystokinin, chronic, E286
  distention, pyloropancreatic reflex, E468
  enzyme secretion, E286
  exocrine secretion, pyloropancreatic reflex, E468
  fundic histology, E286
  glucagon, feeding suppression, E314
  hypertrophy, E286
  insulin: *see* Insulin
  pentagastrin, chronic, E286
  perfusion, insulin secretion and acid-base alterations, E426
  secretin, chronic, E286
  secretion, sham feeding, E417
Pancreatectomy
  glucose turnover, extrapancreatic glucagon and, E213
Pancreatic islets
  fatty acids (ovine), E162
  insulin: *see* Insulin
  trophic actions of pentagastrin, cholecystokinin, and secretin, E286
Papaverine
  vascular compliance, delayed, and fluid exchange, intestinal, H660
Papillary muscle: *see* Muscle, heart
Parabrachial pons
  mediation of renal vasoconstriction, R223
Parabronchi: *see* Bronchi
Parametric forcing
  arterial pressure control system, R104
Paraquat
  perfusion, lung, glucose metabolism, E653
Parasitism
  inflammation, intestinal mucosa, R72
  myoelectric activity, intestinal, R188
Parasympathetic stimulation
  potassium ion transport, salivary gland, E79
Parathyroid hormone
  aerobic glycolysis, bone (embryonic chick, newborn rat), C41, C51
  glomerular ultrafiltration, F393
  hypercalciuria, E294
  phosphate, inorganic, renal handling, F497
  phosphate reabsorption, nephron, F287
  phosphate reabsorption, renal tubular, calcium effects, F22
  phosphate transport, renal, F199
  red cell space, bone, hypocalcemia, E6
Parathyroidectomy
  hypercalciuria, lithium-induced, E294
Pargyline
  α-adrenoceptor affinity, cutaneous veins, H330
  norepinephrine metabolism, saphenous vein, H235
Pars recta
  chloride ions, absorption, F332
  flow-rate dependence, F340, F349
  hydraulic conductivity coefficient, F340
  length dependence, F349
  luminal hypotonicity, F349
  sodium ions, transport, F332
  volume absorption, F332, F340, F349
Particle aggregation
  antidiuretic hormone-induced, bladder (toad), F461
Pentagastrin
  acid secretion and motility, gastric mucosa (kitten, ferret), E319
  pressure response, lower esophageal sphincter (opossum), E301
  trophic action, pancreas, E286
Pentobarbital
  circulatory filling pressure and vascular capacitance measurements, H94
  descending pressor pathway, H152
Pentobarbitone
  vasopressin, plasma, E463
Pentose pathway
  glucose metabolism, E97
Peptides
  angiotensin II, tubular handling, F325
  gastric secretion stimulation, intestinal phase, E64
  melanotropic, plasma/cerebrospinal fluid barrier permeability, E327
  synthetic, hyperglycemic action, E521
Peptone
  instillation, esophageal sphincter regulation, E157
Perfusion: *see also* subject or site
  coronary, nonoxygenated solutions, in reactive hyperemia, H625
  heart, fluorocarbon, myoglobin function, H567
  heart, respiratory acidosis, H40
  heart, sugar transport kinetics, insulin effects, E70
  hemicorpus, protein turnover, skeletal muscle, E38
  intestinal, sham feeding, E417
  kidney, aldosterone metabolism, E472
  lung, distribution (duck), R146
  lung, paraquat, glucose metabolism, E653
  myocardium, calcium-free, magnesium fluxes, C115
  pancreas, insulin secretion and acid-base alterations, E426
  total, oxygen exchange and vascular resistance (trout), R201

Perinatal: *see* Fetus; Newborn
Peripheral blockade: *see* Blockade
Peripheral resistance: *see* Resistance
Peristalsis
  esophageal, vagal innervation (opossum), E359
Peristaltic flow
  urine, thermistor monitoring, F452
Periventricular preoptic hypothalamus: *see* Hypothalamus
Permeability
  capillary, coronary flow reduction, H679
  capillary, exercise effects in spontaneous hypertension, H439
  capillary, parathyroid hormone effects on glomerular ultrafiltration, F393
  chloride, short-circuited skin (frog), F437
  corneal, bumetanide effects (bullfrog), F297
  corneal epithelium, structured tissues, mathematical modeling, F215
  drugs, pulmonary, neonatal, C191
  drugs, respiratory tract, neonatal, C191
  erythrocytes, renal glucose metabolism, F415
  membrane, potassium ions, intracellular, F261
  membrane, sodium ions, intracellular, F261
  plasma/cerebrospinal fluid barrier, melanotropic peptides, E327
  proximal tubule, pore theory (*Necturus*), F225
  proximal tubule, tight junction (*Necturus*), F225
  proximal tubule, volume expansion (*Necturus*), F225
Permselectivity: *see* Glomerular permselectivity
Peroxidase
  inflammation, intestinal mucosa, R72
Perturbation test
  arterial pressure control system, R104
pH
  changes, insulin secretion, E426
  intracellular, calcium ion release, skeletal muscle (frog), C110
Phagocytosis
  reticuloendothelial, H323
Phenobarbital
  cytochrome *P*-450 induction, hepatocytes, C102
Phenoxybenzamine
  α-adrenoceptor affinity, cutaneous veins, H330
  cerebral circulatory response to metabolic depression (baboon), H74
  hypotension, baroreceptor resetting, time course, H552
Phentolamine
  adrenal regulation of coronary vessels, newborn (lamb), H173
  arrhythmias, hypothalamic stimulation-induced, H199
Phenylethanolamine-*N*-methyltransferase
  dopamine β-hydroxylase secretion, adrenal (bovine), E600
  epinephrine secretion, adrenal (bovine), E600
Phloretin
  3-*O*-methylglucose transport, intestinal epithelial cells (chicken), C64
Phlorizin
  2-deoxy-D-galactose secretion, renal (flounder), F424
  glucose and, interactions, proximal tubule, F270
  glucose metabolism, renal, F485
  renal tubular membranes, F485
  total renal metabolism, F485
Phonocardiography
  heart sounds, second, relation to diastolic vibration of closed aortic valve, H696
Phosphate
  absorption, intestinal, vitamin D and (chick), E379
  deprivation, renal phosphate transport and, F199
  dietary, renal handling, F497
  infusion, renal, F199
  inorganic, renal handling, F497
  reabsorption, calcium effects, renal tubular, F22
  reabsorption, heterogeneity, nephron, F287
  transport, nephron, superficial and deep, F287
  transport, renal, phosphate deprivation and, F199
  transport, vitamin D-dependent, intestinal (chick), E379
Phosphatemia
  phosphate, inorganic, renal handling, F497
Phosphatidic acid pathway
  fatty acid esterification, E236
Phosphodiesterase
  cyclic AMP, prostaglandin $F_{2\alpha}$ and coronary ligation, effects, H718
Phosphoenolpyruvate carboxykinase
  gluconeogenesis (chicken and carnivorous bird), R115
Phospholamban
  phosphorylation, myocardial sarcoplasmic reticulum, in hyperthyroidism, H426
Phospholipase
  prostaglandin E synthesis and water flow, bladder (toad), F532
Phospholipids
  plasma membrane composition, renal medulla, F247
  secretion, biliary, bile acid structure and, E637
Phosphonate: *see* Adenosine phosphonate
Phosphoprotein phosphatase
  microsomal, aorta, H508
Phosphorylase kinase
  activity, regulation, cardiac, H638
Phosphorylation
  capacity, mitochondria, skeletal muscle (frog), C1
  cytosolic adenine nucleotides, C73, C82
  membrane, aorta, H508
  microsomal, aorta, cyclic AMP effects, H508
  myocardial sarcoplasmic reticulum, in hyperthyroidism, H426
  oxidative, mitochondria, skeletal muscle (frog), C1
Photoperiod
  constant, sexual maturation, male, E262
Physical training: *see* Exercise, training
Physics
  "envy," biology and, R1
  hierarchies, R3
Physiological systems
  mathematical models and computer simulations, good manners in good modeling, R161
Physiology
  comparative, renal (reptile), F68, F238
  comparative, renal (avian), F270
  contributions of communication sciences, R159
  developmental: *see* Fetus; Newborn; Embryo
  integrative, field and circuit thermodynamics, R3, R81, R85
Pineal gland
  circadian rhythm, in blindness, R110
Pituitary gland
  arterial wall mechanics, H167
Placenta: *see also* Pregnancy; Fetus; Embryo
  amino acids, transport by microvillous membrane vesicles, C27
  glucose analogues, fetomaternal transfer (sheep), E32
  growth, dietary restriction and ovarian steroidal effects (pig), E190
  intervillous space, H289
  pressure-volume relations, H289
  vascular compliance, H289
Plasma
  adrenal medullary (swine), E137
  hemorrhaged, restoration by gastrointestinal fluid, H80
  volume: *see* Volume
Plasma/cerebrospinal fluid barrier
  permeability melanotropic peptides and, E327
  hibernation (marmot), R178
Plasma constituents: *see* specific constituent
Plasma flow, renal
  glucocorticoid-induced glomerular filtration, F166
Plasma membrane: *see* Membrane; *also* Permeability
Platelets
  preservation, membrane oxygenator priming technique (sheep), H646
  vascular reactivity, lung, H186
Plethysmography
  nutritional and nonnutritional circuits, hindpaw, neural control, H384
  pneumatic cuff: *see* Cuff
Polyamine
  blood levels, pregnancy and lactation, E451
Polypeptide
  vasoactive intestinal: *see* Vasoactive intestinal polypeptide
Population dynamics
  thermodynamics, R3
Pore theory
  permeability, proximal tubule (*Necturus*), F225
Portacaval diversion: *see* Shunt
Postnatal: *see* Newborn
Postprandial: *see* Feeding
Potassium: *see also* Sodium-potassium-ATPase
  adaptation, colon, F48
  arterial, human, H404
  balance, vasopressin-treated diabetes, F106
  conductance, control by internal calcium, H101
  current, transient, temperature effects (mollusc), C155
  depletion, magnesium metabolism, F466
  depletion, muscle buffer values, F432

depolarization, series elasticity, H542
depolarization, norepinephrine metabolism, saphenous vein, H235
excretion, electrolyte infusion studies, renal (sheep), F371
excretion, hypertension, spontaneous, F29
excretion, tubular, uninephrectomy, F146
fluid absorption, proximal tubules, F381
glutamine transport, renal mitochondrial, F514
magnesium fluxes, myocardial contracture, C115
prostaglandin E synthesis and water flow, bladder (toad), F532
proximal tubular function responses, F381
reduction, cerebroarterial response, H404
regulation, tubular sites, uninephrectomy, F146
secretion, colon, F48
sodium and, intracellular activities, F261
transport, transepithelial, F261
urinary, volume rhythms (squirrel monkey), R130
Potassium chloride
intestinal secretion and, E629
Potassium ions
α-adrenoceptor affinity, cutaneous veins, H330
compartmentalization, subcellular, F261
cytoplasmic pools, F261
efflux, parasympathetic-induced, salivary gland, E79
heterogeneity, intracellular, F261
transport, salivary gland, in vivo, E79
Potassium salts
renin secretion, F10
Potentials
contractile, exercise-trained heart, H421
extracellular, axon (squid), C162
gastric, inhibitors and weak bases (frog), E120
membrane, Purkinje fibers, strophanthidin toxicity, H477
membrane, structured tissues, corneal epithelium, F215
resting, cardiac, ionic activities, H101
tip, distal tubule, F182
transepithelial, distal tubule, F182
transepithelial, distal tubule (reptile), F238
transmembrane, myocardial magnesium fluxes, C115
Potentials, action
cardiac, ionic activities, H101
cardiac, maximum upstroke velocity, measurement with sample/hold peak detector, H312
ephaptic transmission, giant axons (squid), C162
heart cells, viral effects, embryo (chick), C170
limb muscles, bipolar electrodes, C198
spike bursts, oviduct, E430, E439
Pouch: *see* Heidenhain pouch; Antral pouch
Practolol
adrenal regulation of coronary vessels, newborn (lamb), H173
protein kinase activity, cardiac, H638
Pregnancy: *see also* Fetus; Placenta; Embryo
dietary restriction and ovarian steroids, effects (pig), E190
gases, respiratory, uterine (swine), R25
lower esophageal sphincter muscle inhibition (opossum), E243
polyamine, blood levels, E451
proteins, plasma, steroid-binding (monkey), E489
Preload
Frank-Starling mechanism, H338
Preoptic hypothalamus: *see* Hypothalamus
Pressors
descending, pathway, in conscious and pentobarbital-anesthetized dog, H152
Pressure: *see also* Blood pressure
arteriolar, cerebral, in hypotension and hypertension, H371
atrial, mitral valve opening and closure, H146
cardiac, neonatal growth (sheep), H520
circulatory filling measurement, H94
esophageal sphincter, gastric antrum regulation, E157
esophageal sphincter, pentagastrin effects (opossum), E301
glomerular, renal autoregulation, F357
glomerular, stop-flow, feedback responses to nephron perfusion, F154
glomerular capillary, chronic tubular obstruction (*Necturus*), F112
hydrostatic, basement membrane, Henle's loop, F54
transpulmonary, dihomo-γ-linolenic acid effects, H133
vascular, edema, histamine-catecholamine interaction, H180
venous, myocardial, venous drainage and, H163
ventricular, mitral valve opening and closure, H146
Pressure, arterial
control system, characteristics, in hemorrhage, R104
excitement-induced (baboon), H210
hypothalamically induced renal vasoconstriction, R223
hypoxemia and spontaneous hypertension, H275
nitroglycerin, H244
reactive hyperemia, skeletal muscle capillaries, H352
renin secretion during CO_2 retention, H573
urinary output and, in hypertension, R98
Pressure-diameter relations
left ventricular, Frank-Starling mechanism, H338
Pressure-flow relations
gut (dogfish), R196
Pressure gradients
cerebrospinal fluid, epidural and ventricular volume loading, R167
left ventricular concentric hypertrophy, reproducible model, H515
Pressure overload
hypertrophy and failure, myosin ATPase recovery, H711
myosin ATPase and mechanics, cardiac, H253
Pressure-strain relations
left ventricular, H392
Pressure-volume relations
cerebrospinal fluid, R167
placental, H289
ventricular, Frank-Starling mechanism, H338
Priming
oxygenator: *see* Oxygenators
Probenecid
prostaglandin E synthesis and water flow, bladder (toad), F532
Procainamide
absorption, pulmonary, neonatal, C191
^{14}C-labeled, determination, myocardium, H399
Procaine
calcium ion release, skeletal muscle (frog), C110
Progesterone
cerebrovascular response to 5-hydroxytryptamine (baboon), H300
exogenous, fetal developmental effects (pig), E190
lower esophageal sphincter muscle inhibition (opossum), E243
prostaglandin E synthesis and water flow, bladder (toad), F532
spike bursts, oviduct, E439
Prolactin
powder, contamination by antidiuretic hormone and oxytocin, F318
sexual maturation, male, in continuous light, E262
Propranolol
adrenergic inotropic and chronotropic effects, cardiac, H525
arrhythmias, hypothalamic stimulation-induced, H199
cardiac pump performance, ischemia and exercise, H157
sinus node response, postnatal, H412
ventricular electrical stability, H503
ventricular fibrillation threshold, H592
Propantheline
arrhythmias, hypothalamic stimulation-induced, H199
Prostaglandin D_2
contractile effects, intrapulmonary vessels, H139
Prostaglandin E
endogenous, contractile activity, ileal smooth muscle, E209
endogenous, intestinal motility, E204
synthesis, vasopressin-stimulated, adrenal steroid effects, bladder (toad), F532
Prostaglandin E_1
blood flow, uterine (sheep), H557
calcium uptake, muscle mitochondria, C7
transport, renal, F80
Prostaglandin E_2
blood flow, uterine (sheep), H557
ductus arteriosus (lamb), H117
gastric secretion inhibition, oxygen consumption during, E445
zinc absorption, E99
Prostaglandin $F_{2\alpha}$
blood flow, uterine (sheep), H557
coronary ligation and, H718
transport, renal, F80
Prostaglandin H_2
analogue, contractile effects, intrapulmonary vessels, H139
Prostaglandin I_2
ductus arteriosus (lamb), H117
Prostaglandin synthetase
pulmonary vascular response to ventilation, fetus (goat), H346
Prostaglandins
and *p*-aminohippuric acid transport, renal, comparisons, F80
biosynthesis, renal papilla, stimulation

Prostaglandins (*continued*)
by hypertonic mediums, F64
contractile effects, intrapulmonary vessels (canine, bovine), H139
ductus arteriosus (lamb), H117
inhibitors, renal vascular responses, H496
intestinal, E204
magnesium metabolism, F466
metabolism, renal, F80
monoenoic, pulmonary vascular bed, H133
red cell space, bone, in hypocalcemia, E6
renal vascular responses to bradykinin, histamine, and nitroglycerin, H496
sodium and water retention, F490
synthesis, ileal, E209
Protein
balance, hydrocortisone and insulin effects, fetal heart, E306
contractile, myocardial, pressure-overload hypertrophy and failure, H711
degradation, skeletal muscle, E38
extravascular, capillary-tissue fluid exchange, mathematical model, H52
fatty acid-binding, liver, E542
lymph, histamine-catecholamine interaction, H180
steroid-binding, plasma, during pregnancy (monkey), E489
turnover, growth hormone effects, skeletal muscle, E38
turnover, hypophysectomy effects, skeletal muscle, E38
zinc-binding, hepatic, E399, E542
Protein kinase
adrenergic-cholinergic interaction, heart, H432
contractility, cardiac, H638
cyclic AMP-dependent, cardiac, H432
hepatic, diabetes, E13
microsomal, aorta, H508
phosphorylase activity, regulation, cardiac, H638
phosphorylation, myocardial sarcoplasmic reticulum, in hyperthyroidism, H426
Protein synthesis
adrenal steroids and, bladder (toad), F532
fetal heart, E306
fibrinogen half-life, E504
gastrointestinal malignancies, E648
human visceral, E648
skeletal muscle, E38
Proteinuria
glomerular permselectivity, F455
Proteolysis
occlusion shock, splanchnic artery, H1
Pulmonary artery
occluder, for measurement of circulatory filling pressure and vascular capacitance, H94
Pulmonary edema: *see* Edema
Pulmonary exchange vessels
filtration coefficient, H266
Pulmonary vascular bed: *see* Lungs
Pulmonary vasoconstriction: *see* Vasoconstriction
Pump
cardiac, ischemia and exercise, H157
electrogenic sodium, cerebroarterial response, H404
sodium, magnesium and, bladder (toad), F192
Pump-leak systems
solute transport, tubular, F480
Purkinje fibers
contractile force, strophanthidin toxicity, H477
membrane potentials: *see* Potentials
strophanthidin toxicity, sodium and, H477
Pyloropancreatic reflex
pancreatic exocrine secretion, E468
Pyloroplasty
gastric emptying, E375
Pylorus
cholecystokinin inhibition of gastric emptying, E375
Pyridine nucleotide
redox state, heart, H40
Pyruvate
heart performance, ischemia and physical training, H215
metabolism, paraquat-perfused lung, E653
Pyruvate dehydrogenase
respiratory acidosis, perfused heart, H40

Quinidine
cardiac action potential, maximum upstroke velocity, H312
Quinine
calcium ion release, skeletal muscle (frog), C110

Radioactive microspheres: *see* Microspheres; *also* specific subject or site
Radiochemical determinations
procainamide, myocardium, H399
Radioenzymatic assay
plasma catecholamines, spontaneous hypertension, H690
Radioimmunoassay
prostaglandin E synthesis and water flow, bladder (toad), F532
vasopressin, cerebrospinal fluid and plasma, E463
Radioiodinated human serum albumin: *see* Albumin
Radionuclide studies: *see* specific subject or site; *also* Microspheres
Radiopaque markers
mitral valve opening and closure, H146
Radiotelemetry
exercise and excitement effects on mesenteric and renal dynamics (baboon), H210
Reabsorption: *see* specific substance or site
Reactive hyperemia: *see* Hyperemia
Receptors: *see also* Reflexes
acyl, fatty acid esterification, intestinal, E236
adrenergic, blockers, insulin secretion modulation, E106
α-adrenergic affinity, thermoregulatory behavior of veins, H330
β-adrenergic, sinus node changes, postnatal, H412
airway, reflexes (monkey), H293
chemoreceptors, cardiovascular-respiratory reflex interactions (monkey), H293
chemoreceptors, renin secretion during CO_2 retention, H573
cholinergic, drinking inhibition, F41
H_2 antagonists, bicarbonate secretion, gastric, E535
histamine, mesenteric circulation, E370
histamine antagonists, mesenteric circulation, E370
insulin, soleus muscle, E348
mineralocorticoid, renal, sodium and water retention, F490
muscarinic, sinus node changes, postnatal, H412
vagal restraint of systemic blood pressure during hemorrhage, H192
Receptors, baroreceptors
arterial, during simulated dives (seal), H730
carotid sinus, plasma renin activity, H670
impulse activity, diving (seal), H730
resetting, time course, in short-term hypotension, H552
Recirculation
fluorescein, retinal, H315
Red blood cells: *see* Erythrocytes
Redox: *see* Oxidation-reduction
Reflection coefficient
proximal tubule, volume expansion (*Necturus*), F225
Reflexes: *see also* Receptors
airway receptors (monkey), H293
arrhythmias, hypothalamic stimulation-induced, H199
autonomic, coronary regulation, newborn (lamb), H173
cardiovascular-respiratory interactions (monkey), H293
carotid bodies (monkey), H293
carotid sinus, plasma renin activity, H670
carotid sinus, simulated dives (seal), H730
pyloropancreatic, E468
vasodilation, cholinergic and histaminergic components, relation, H305
Reflexes, baroreceptor
arterial, during simulated dives (seal), H730
descending pressor pathway, H152
nitroglycerin and, H244
spinal sympathetic discharge, H223
trigeminal and aortic vasodepressor responses, H67
Regression analysis: *see* Models
Relaxation
heart muscle: *see* Muscle, heart
Renal nerves
stimulation, blood flow changes, renal, continuous measurements, H219
Renin
developing kidney and lung, R141
immunofluorescent localization, kidney and submaxillary gland, E480
inhibition by fatty acids, E593
plasma activity, angiotensin II infusion, R66
plasma activity, carotid sinus reflex, H670
pools, renal, F506
release, mechanisms, F10, F373
release, sodium deprivation, F376
synthesis, renal, F506
Renin, secretion
anions, F10
carbon dioxide retention, H573
[des-Asp^1]angiotensin I effects, F130
renal renin content and, F506

respiratory acidosis, H573
sodium salts, F10
Renin-angiotensin system
acute renal failure, F171
hypertension, E25, E267, H447
vasoactive factor, hypertension, E25
vasopressin-treated diabetes, F106
Renin-angiotensin-aldosterone system
hibernation (marmot), R178
Reperfusion
blood flow depression and wall thickening, coronary H653
rubidium-86 reflow and uptake, H724
Repetitive firing frequency: *see* Firing frequency
Reserpine
adrenal medullary function, development (swine), E137
hypotension, baroreceptor resetting, time course, H552
Resistance
extracellular, giant axons (squid), C162
gastric, inhibitors and weak bases (frog), E120
Resistance, vascular
angiotensin and epinephrine effects, gut (dogfish), R196
branchial, totally perfused trout, R201
cerebral, renal hypertension, H35
coronary, adrenals and, newborn (lamb), H173
edema, histamine-catecholamine interaction, H180
hyperosmolality, ileal, H14
hypoxemia and spontaneous hypertension, H275
neonatal growth (lamb), H520
peripheral, total, trigeminal and aortic vasodepressors, H67
pre- and postcapillary, exercise effects in spontaneous hypertension, H439
regional, trigeminal and aortic vasodepressors, H67
Respiration
mitochondrial, and cytosolic metabolism, energy relationships, heart, C73
skeletal muscle (frog), C1
Respiratory acidosis: *see* Acidosis
Respiratory reflex: *see* Reflexes
Respiratory control ratio
mitochondria, skeletal muscle, C1
Respiratory gases: *see* Gas, or the specific gas
Respiratory tract
permeability: *see* Permeability
Reticuloendothelial system
function, intravascular coagulation and, H323
Retinal circulation
fluorescein dye-dilution technique, H315
Rhythm, circadian
adrenocortical activity differences, mutual influence, E515
disaccharidase activity, postnatal development, small intestine, E500
pineal and activity cycles, in blindness, R110
synchronization by light and food (squirrel monkey), R130
Rhythm, free-running
adrenocortical activity, E515
Ribonucleic acid
protein turnover, skeletal muscle, E38
uric acid metabolism, muscular dystrophy, E421
Rubidium-86
extraction, arterial hypoxia, E248
reflow and uptake, coronary occlusion, H724
Rubidium chloride
and microspheres, quantitation of collateral and ischemic flows, H487
Rubidium ion
transport (duck), C59
Running: *see* Exercise

Saline
infusion, phosphate reabsorption, renal tubular, calcium effects, F22
Saliva
microdrop analysis technique, with energy-dispersive x-ray spectrometer on a scanning electron microscope, F255
Salivary gland
potassium ion transport in vivo, E79
Salt
absorption, pars recta, F349
load, renal response (starling), F270
loading, hypertension, spontaneous, F29
preference, adult, effects of prenatal and postnatal sodium deprivation, F58
transport, pars recta, F340
Salt gland
insulin effects on monovalent cation transport and sodium-potassium-ATPase activity (duck), C59
Sample/hold peak detector
maximum upstroke velocity of cardiac action potential, H312
Saphenous vein
norepinephrine metabolism, H235
[Sar^1,Ala^8]angiotensin II: *see* Angiotensin antagonists
[Sar^1,Thr^8]angiotensin II: *see* Angiotensin antagonists
Sarcoplasm
magnesium concentration, myocardial contracture, C115
Sarcoplasmic reticulum
myocardial, phosphorylation in hyperthyroidism, H426
sucrose, ^{3}H-labeled, compartments (frog), C181
terminal cisternae (frog), C181
volume, sucrose compartments and (frog), C181
Scanning
liver, bile secretion, hemodynamic effects, E584
Scanning electron microscope: see Microscopy
Secretin
erythritol clearance, biliary, E146
mannitol clearance, biliary, E146
trophic action, pancreas, E286
Secretion: *see* specific subject or site
Sensitizing factors
hypertension, E25
Sensor
thermistor, urine flow, F452
Septum, ventricular: *see* Heart ventricles
Series elasticity
smooth muscle: *see* Muscle, smooth
Serotonin
adrenocorticotropin feedback inhibition, R46
cerebrovascular response to 5-hydroxytryptamine (baboon), H300
circadian rhythms of pineal and running in blindness, R110
Sex hormones
female, lower esophageal sphincter muscular inhibition (opossum), E243
Sex steroids: *see* Steroids
Sexual maturation: *see* Maturation
Sham feeding: *see* Feeding
Shear stress
histamine synthesis, aorta, H701
Shock
cardiogenic, coronary occlusion, hydrogen peroxide effects, H28
nonhypotensive, restoration of hemorrhaged plasma volume by gastrointestinal fluid, H80
occlusion, splanchnic artery, dopamine action, H1
reticuloendothelial function, H323
Short-circuit current: *see* Current
Shunt
cardiopulmonary bypass, mitral valve opening and closure, H146
jejunoileal bypass, obese and lean mice, E389
portacaval diversion, lipid metabolism, adipose tissue, E579
sodium ion conductance, stomach (mammalian), E228
Shunt pathway
chloride, short-circuited skin (frog), F437
Silver
excretion, biliary, metallothionein effects, E47
Sinoatrial node
excision, pacemaker function, H465, H471
Sinus node
atropine-induced changes, postnatal, H412
automaticity, H471
autonomic maturation, H412
excision, pacemaker function, H465, H471
propranolol-induced changes, postnatal, H412
SITS: *see* 4-Acetamido-4′-isothiocyano-2,2′-disulfonic stilbene
Skeletal muscle: *see* Muscle, skeletal
Skin
short-circuited, chloride fluxes, amiloride reduction (frog), F437
sodium transport pool (frog), F1
Smooth muscle: *see* Muscle, smooth
Sodium
absorption, intestinal, E629
absorption, proximal tubules (snake), F68
balance, and angiotensin antagonists, hypotensive effects, H447
balance, vasopressin-treated diabetes, F106
concentration, nauplius (shrimp), R216
depletion, and hypertension, hypotensive effect of [Sar^1,Thr^8]angiotensin II, H447
depletion, plasma renin activity, H670
deprivation, critical periods, F59
deprivation, pre- and postnatal, subsequent adult thirst and salt preference, F59
deprivation, renin release and, F376
excretion, [des-Asp^1]angiotensin I effects, F130

Sodium (*continued*)
excretion, hypertension, spontaneous, F29
fluid absorption, proximal tubules (snake), F68
loading, renin release, F376
magnesium metabolism, F466
metabolism, pre- and postnatal, F59
permeability, skin (frog), F437
potassium and, intracellular activities, F261
pump: *see* Pump
reduction, cerebroarterial response, H404
retention, nonsteroidal anti-inflammatory drugs, F490
retention, renal, acute cardiac tamponade, F117
strophanthidin toxicity, Purkinje fibers, H477
transport, bladder, magnesium effects (toad), F192
transport, transepithelial, F261
Sodium chloride
hyperosmotic, vascular resistance and lymph flow, ileum, H14
infusion, potassium excretion, renal (sheep), F371
Sodium ions
compartmentalization, subcellular, F261
cytoplasmic pools, F261
electrochemical gradient, colon, F48
electrochemical gradient, plasma membrane, F89
glucose carrier dependence, renal cortex, E1
heterogeneity, intracellular, F261
transport, stomach (mammalian), E228
transport, pars recta, F332
Sodium phosphate
infusion, potassium excretion, renal (sheep), F371
Sodium pool
activity, techniques, bladder (toad), F1
size, bladder (toad), F1
transepithelial transport, bladder (toad), F1
Sodium-potassium-ATPase
hemodynamic effects, liver, E584
insulin activation (duck), C59
ouabain inhibition, intestinal, E629
plasma membranes, distinct, renal medulla, F247
Sodium salts
renin secretion, F10
Sodium sulfate
infusion, potassium excretion, renal (sheep), F371
Solenoid valve
pneumatic cuff, H740
Soleus muscle
insulin binding, E348
sugar transport, insulin-stimulated, ATP effect, E407
Solute transport
renal tubular, leaked load, F480
Somatostatin
glucagon and glucose turnover, extrapancreatic, E213
glucose utilization, adipocytes, E554
Spectrin
2,3-diphosphoglycerate binding, C36
oxygen affinity of hemoglobin, C36
Spectrometry
energy-dispersive x-ray, for microdrop analysis of fluids, F255
mass, prostaglandin biosynthesis, renal papilla, F64
Spectroscopy
power and communicational, in biology, R3
Spermidine
blood levels, pregnancy and lactation, E451
Sphincter, esophageal: *see* Esophageal sphincter
Spike bursts
oviduct, estrogen and progesterone effects, E439
oviduct, ovulation effects, E430
Spinal cord
transection, arrhythmias, hypothalamic stimulation-induced, H199
Spine
afferent nerves, interaction with descending sympathetic pathway, E223
descending sympathetic pathway, H152, H223
sympathetic discharge, regulation, H223
sympathoinhibitory-sympathoexcitatory interaction, H223
trigeminal complex, hemodynamic responses, H67
Spironolactone
hypertension, spontaneous, F29
prostaglandin E synthesis and water flow, bladder (toad), F532
Splanchnic artery
occlusion shock, dopamine action, H1
Splenectomy
hemorrhaged plasma volume, restoration by gastrointestinal fluid, H80
Starvation: *see* Fasting
Stellate ganglion
stimulation, ventricular electrical stability, H503
Stellectomy
ventricular electrical stability, H503
Steroid hormones
smooth muscle, oviduct, C96
Steroids
adrenal, prostaglandin E synthesis and water flow, bladder (toad), F532
adrenal, prostaglandin E synthesis and water flow, vasopressin-stimulated, bladder (toad), F532
adrenal, renal hypertension, E267
anesthesia, cerebral circulatory response to metabolic depression (baboon), H74
ovarian, fetal developmental effects (pig), E190
ovarian, spike bursts, oviduct, E439
plasma, hibernation (marmot), R178
plasma, protein binding, in pregnancy (monkey), E489
sex: *see also* Sex hormones
sex, plasma, protein binding, in pregnancy (monkey), E489
Stiffness, muscle: *see* Muscle
Stomach: *see also* Gastric
bicarbonate secretion, E535
carbon dioxide tension, E535
Heidenhain pouch, interdigestive motor activity, E333
inhibitors and weak bases (frog), E120
membrane transport energetics, E445
metabolism, oxygen consumption and, E445
motility: *see* Motility
proximal, cholecystokinin inhibition of gastric emptying, E375
secretion: *see* Gastric secretion
sodium ion transport (mammalian), E228
Stop-flow experiments
kinins, formation, nephron, F36
Stop-flow pressure
glomerular, feedback responses to nephron perfusion, F154
Strain
ventricular: *see* Heart ventricles
Strain-energy-density factor
arterial wall, H533
Stress
adrenocorticotropin feedback inhibition, R46
corticosteroid negative feedback, R39
hyperresponsivity, spontaneous hypertension, H690
metallothionein induction, E282
shear: *see* Shear stress
Stress-strain relations: *see* Muscle
Stress test
treadmill: *see* Exercise
Stroke volume: *see* Volume
Stroke work
segment, coronary blood flow (pig), H597
Strophanthidin
toxicity, sodium effects, Purkinje fibers, H477
Submaxillary gland
renin, immunofluorescent localization, E480
Submersion
underwater weighing, technique for determining body fat, E94
Substrates
gluconeogenic, glucose homeostasis, newborn, E129
neural, body fluid homeostasis, R122
Suckling: *see* Newborn
Sucrose
^{3}H-labeled, compartments, sarcoplasmic reticulum (frog), C181
space, skeletal muscle (frog), C181
Sugar
blood levels (chicken and carnivorous bird), R115
fatty acid esterification, E236
reabsorption, renal (flounder), F424
Sugar transport
energetics, intestinal (chicken), C64
insulin, heart muscle, E70
insulin-stimulated, ATP effect, soleus muscle, E407
renal (flounder), F424
sodium ion-dependent, intestinal (chicken), C64
Sulfisoxazole
absorption, pulmonary, neonatal, C191
Superfusate
norepinephrine metabolism, saphenous vein, H235
Supraoptic nuclei
antidiuretic hormone release, angiotensin II-stimulated, F135
Survival time
coronary occlusion, hydrogen peroxide effects, H28
Sweat
microdrop analysis technique, with energy-dispersive x-ray spectrometer on a scanning electron microscope, F255

Swimming: *see* Exercise
Sympathectomy
  cervical, cerebral circulatory response, time course (baboon), H74
Sympathetic constrictors: *see* Constrictors
Sympathetic nervous system
  hyperresponsivity, spontaneous hypertension, H690
Sympathetic pathways
  descending, spinal, and afferent nerves, interaction, H223
Sympathetic regulation
  coronary vessels, newborn (lamb), H173
Sympathetic stimulation
  α-adrenoceptor affinity, cutaneous veins, H330
  inotropic state, heart, H562
Synaptic transmission
  lower esophageal sphincter (opossum), E273
Systems analysis: *see* Models, computer

Tamponade
  cardiac, acute, renal function, F117
Taurocholate
  cholereses, E146
  erythritol clearance, biliary, E146
  hemodynamic effects on bile secretion, liver, E584
  mannitol clearance, biliary, E146
Temperature: *see also* Thermogenesis; Thermoregulation
  circadian rhythm synchronization (squirrel monkey), R130
  cold: *see* Cold; Cooling; Hypothermia
  dynamics, fertile egg (chicken), R183
  heat: *see* Heat
  incubation, fertile egg (chicken), R183
  reduced, calcium-45 efflux, aortic, C139
  repetitive firing frequency, mechanism for minimizing effects (mollusc), C155
Test meals: *see* Feeding
Testosterone
  occlusive arterial thrombosis, H454
Tetraethylammonium
  absorption, pulmonary, neonatal, C191
Tetrodotoxin
  blockade, skeletal muscle (frog), C181
Theophylline
  calcium ion release, skeletal muscle (frog), C110
  3-*O*-methylglucose transport, intestinal epithelial cells (chicken), C64
Thermistor
  urine flow rate monitoring, F452
Thermodynamics
  application to biology, R85
  application to language and communication, R3
  bookkeeping, a general experimental method, R85
  communal organization in living systems, R85
  diffusion, R85
  field and circuit, for integrative physiology, R3, R81, R83
  fluctuations, R85
  homeokinesis, R3, R85
  life and, R81
  networks, R3, R85
  renal medulla, central core model, F402
  space-time considerations, R85
  spectroscopy, power and communicational, R3
  transport, R85
  wave propagation, R85
Thermogenesis
  nonshivering, calcium uptake, muscle mitochondria, C7
Thermoregulation
  α-adrenoceptor affinity, cutaneous veins, H330
  external, fertile egg (chicken), R183
Thiocyanate
  gastric acid inhibition, oxygen consumption and, E445
  inhibition, electrophysiology and secretion, stomach (frog), E120
Thirst: *see also* Drinking
  brain lesions, R122
  central blockade, F41
  critical periods, F59
  imprinting, F59
Thoracic nerves
  preganglionic, regulation, H223
Thrombin
  coagulation, reticuloendothelial function and, H323
Thrombosis
  occlusive arterial, gonadal hormones and pathogenesis, H454
Thromboxane A_2
  ductus arteriosus (lamb), H117
Thyroid glands
  function (chicken), E168, E177
  iodide transport, organic binding blocked (chicken), E177
  iodine, dietary, accumulation (chicken), E168
  iodine, dietary, transport, organic binding blocked (chicken), E177
  radioiodine accumulation (chicken), E168
Thyroid states
  insulin secretion, adrenergic modulation, E106
Thyroidectomy
  extensor muscle properties, C90
Thyroparathyroidectomy
  phosphate, inorganic, renal handling, F497
  phosphate reabsorption, nephron, F287
  phosphate reabsorption, renal tubular, calcium effects, F22
  phosphate transport, renal, F199
Tibial nerve
  nutritional and nonnutritional circuits, H384
Tip potential: *see* Potentials
Tissue
  cardiac, electrical activity, ionic basis, H101
  fluid: *see* Fluid
  hydration: *see* Hydration
  structured, transport, mathematical modeling, F215
  vein, norepinephrine metabolism, H235
Tolbutamide
  acid-base alterations, E426
  insulin secretion, E416
Toxicity
  strophanthidin, sodium effects, Purkinje fibers, H477
Toxin
  cholera: *see* Cholera toxin
Tracer techniques: *see* specific site or subject
Training: *see* Exercise, training
Transducers, force
  interdigestive motor activity, Heidenhain pouch, E333
Transepithelial potentials: *see* Potentials
Transit time
  vascular capacitance, intestinal, H7
Transmembrane potentials: *see* Potentials
Transmission: *see also* Neurotransmitters
  ephaptic, giant axons (squid), C162
  synaptic, lower esophageal sphincter (opossum), E273
Transport: *see* site and subject
Transpulmonary pressure: *see* Pressure
Tranylcypromine
  cerebrovascular response to 5-hydroxytryptamine (baboon), H300
Trauma
  reticuloendothelial function, H323
Treadmill stress test: *see* Exercise
Triadic junction
  skeletal muscle (frog), C181
Triamcinolone
  prostaglandin E synthesis and water flow, bladder (toad), F532
Trichinella spiralis
  inflammation, intestinal mucosa, R72
  myoelectric activity, intestinal, R188
Trigeminal vasodepressors
  hemodynamic responses, H67
Triglycerides
  feeding, glucose homeostasis, newborn, E129
  lymph, intestinal secretion, E277
  secretion, reduced, chronic exercise, E221
  synthesis and release, fatty liver, E511
  synthesis and release, hypervitaminosis A, E511
  very low density lipoproteins, intestinal secretion, E277
Tritiated water: *see* Water
Triton
  fatty liver, hypervitaminosis A, E511
Triton method
  triglyceride secretion, exercise, E221
Tubules: *see* Kidney tubules
Tubuloglomerular feedback: *see* Feedback
Tumors
  visceral, protein synthesis and, E648
Tyramine
  norepinephrine metabolism, saphenous vein, H235
Tyrosine
  adrenal medullary function, development (swine), E137

U0521
  α-adrenoceptor affinity, cutaneous veins, H330
Ultrafiltration: *see also* Filtration
Ultrafiltration, glomerular
  acute renal failure, F171
  barrier function based on molecular size and charge, F455
  epithelial slit diaphragm, F455
  mesangial cell dysfunction, F455
  parathyroid hormone effects, F393
  permselectivity, F455
  proteinuria, F455
Uncoupling
  excitation-contraction, magnesium fluxes, myocardial contracture, C115
Uninephrectomy: *see* Nephrectomy
Urate
  muscular dystrophy, E421

Urea
central core model, renal medulla, F402
excretion, vasopressin-treated diabetes, F106
Urea nitrogen
blood, hibernation (marmot), R178
Uric acid
metabolism, muscular dystrophy, homozygous and heterozygous mice, E421
salt load (starling), F270
specific activity ratio, renal (chicken), F446
synthesis, renal (chicken), F446
Uricase
muscular dystrophy, E421
Urinary bladder
antidiuretic hormone-induced intramembranous particle aggregation, time course (toad), F461
membrane function and structure (toad), F461
sodium transport, magnesium effects (toad), F192
sodium transport pool (toad), F1
water permeability (toad), F461
prostaglandin E synthesis and water flow (toad), F532
Urinary constituents: *see* specific constituent
Urinary excretion: *see* specific substance
Urinary output
arterial pressure and, relations in hypertension, R98
Urine
concentrating mechanism, newborn, F16
microdrop analysis technique, with energy-dispersive x-ray spectrometer on a scanning electron microscope, F255
thermistor flowmeter, F452
spurt volume, thermistor flowmeter, F452
Urine/plasma
urate, muscular dystrophy, E421
Uterus
blood flow, prostaglandin effects (sheep), H557

Vacuum priming
oxygenator: *see* Oxygenators
Vagal afferents: *see* Afferents
Vagal inhibitory pathway
5-hydroxytryptamine participation, lower esophageal sphincter (opossum), E273
Vagal innervation
esophagus (opossum), E359
Vagal stimulation
and acetylcholine, differential sensitivity, cardiac, H460
esophageal function (opossum), E359
intestinal transport, E417
Vagal tone
ventricular electrical stability, H503
Vagotomy
gastric emptying, E375
glucagon suppression of feeding, E314
plasma renin activity, H670
thoracic, esophageal function (opossum), E359
ventricular electrical stability, H503
Vagus nerves
arrhythmias, hypothalamic stimulation-induced, H199
cardiovascular-respiratory reflex interactions (monkey), H293
glucagon suppression of feeding, E314
pyloropancreatic reflex, E468
Vascular capacitance: *see* Capacitance
Vascular compliance: *see* Compliance
Vascular reactivity
lung, red blood cells and platelets, H186
Vascular resistance: *see* Resistance
Vascular response
pulmonary, to ventilation, indomethacin effects fetus (goat), H346
renal, to prostaglandin inhibitors, H496
renal, to renal nerve stimulation and intra-arterial drug administration, continuous measurement, H219
Vascular smooth muscle: *see* Muscle, smooth, vascular
Vascularity
red cell space, bone, in hypocalcemia, E6
Vasoactive factor
new, in hypertension, E25
Vasoactive intestinal polypeptide
smooth muscle response, gallbladder, E44
Vasoconstriction
arterial, arginine vasopressin, H167
cerebral, metabolic depression (baboon), H74
cerebral arterial and arteriolar, hypotension and hypertension, H371
lung, hypoxic (duck), R146
mesenteric, adrenergic mechanisms (baboon), E457
mesenteric, excitement-induced (baboon), H210
pulmonary, platelets and, H186
pulmonary, red blood cells and, H186
renal, acute renal failure, F171
renal, excitement-induced (baboon), H210
renal, parabrachial pons mediation, R223
Vasodepressors
trigeminal and aortic, hemodynamic responses, H67
Vasodilation
cerebral arterial and arteriolar, hypotension and hypertension, H371
cerebral arterioles, hypoxia, H582
mesenteric, adrenergic mechanisms (baboon), E457
osmotic, ileal, H14
reflex, cholinergic and histaminergic components, relation, H305
Vasodilators
cardiac function and regional blood flow distribution, H244
metabolites, cerebrovascular, H582
prostaglandin inhibitors, renal vascular response, H496
Vasopressin: *see also* Antidiuretic hormone
adenylate cyclase responsiveness, renal, newborn, F16
^{3}H-labeled, plasma membrane, renal medulla, F247
plasma, radioimmunoassay, E463
prolonged treatment, diabetes insipidus, F106
release, osmotic threshold (sheep), E339
secretion, angiotensin II infusion, R66
sodium transport, bladder (toad), F192
Vasopressin, arginine
osmotic water exchange, circulatory effects (frog), R172
physiological dose, arterial wall mechanics, H167
prostaglandin E synthesis, adrenal steroid effects, bladder (toad), F532
water flow, adrenal steroid effects, bladder (toad), F532
Veins
thermoregulatory behavior, α-adrenoceptor affinity and, H330
tissue, norepinephrine metabolism, H235
Velocity
potentials: *see* Potentials
Vena cava, inferior thoracic
constriction, renin release, F10
Venoconstriction
intestinal, indicator-dilution mean transit time, H7
Venous drainage
anterior descending vs. circumflex, cardiac vein and coronary sinus, quantitation, H163
Ventilation
minute, heart rate response, H129
oxygen exchange, and vascular resistance, totally perfused trout, R201
pulmonary vascular response to indomethacin, fetus (goat), H346
Ventricles: *see* Heart ventricles; Cerebral ventricles
Vincristine
lactose inhibition, mammary gland, C177
Viral infection
heart cell electrical parameters, embryo (chick), C170
Viscera
portal-drained, glutamine (sheep), E197
Vitamin A
fatty liver and, E511
Vitamin D
metabolism, calcium, dietary, effects (quail), E622
metabolism, gonadal hormone effects (quail), E622
phosphate transport, intestinal (chick), E379
Vitamin K_1
absorption, luminal constituents, E54
absorption, thoracic duct lymph, E54
transport into bile, E54
Vitamin K_5
glucose transport, fat cells, E484
Vitamins
fat-soluble, lymphatic absorption, E54
Voltage
interspike trajectory, temperature and (mollusc), C155
Voltage clamp
ionic activities, cardiac, H101
sodium transport, magnesium effects, bladder (toad), F192
Volume: *see also* Blood volume
absorption, pars recta, F332, F340, F349
cardiac, Frank-Starling mechanism, H338
cardiac myocytes, H123
extracellular fluid, spontaneous hypertension, F29
plasma, calculation, with radioiodinated albumin and ^{51}Cr-labeled erythrocytes, in volume expansion, F386

plasma, hemorrhaged, restoration by gastrointestinal fluid, H80
sarcoplasmic reticulum, sucrose compartments (frog), C181
stroke, adrenergic effects, cardiac, H525
stroke, neonatal growth (sheep), H520
vascular, unstressed, intestinal, H660
ventricular, adrenergic effects, H525
water displacement, submersion, body fat determination, E94
Volume expansion
albumin, radioiodinated, escape rate, F386
cardiac output, H21
chloride reabsorption, segmental, nephron, F97
erythrocytes, ^{51}Cr-labeled, escape rate, F386
extracellular, renal, phosphate deprivation, F199
extracellular, renal, phosphate transport, F199
extracellular fluid, bicarbonate reabsorption in renal insufficiency, F472
permeability changes, proximal tubule (*Necturus*), F225
renal excretion, H21
Volume-flow rate
kidney medulla, central core model, F402
Volume loading
epidural, cerebrospinal fluid pressure transients, R167
Frank-Starling mechanism, H338
overload, contractile state of hypertrophied left ventricle, H88
ventricular, cerebrospinal fluid pressure transients, R167

Wall
compliance, left ventricular, and septal diastolic compliance, comparison, H392
thickening, myocardial, coronary occlusion, H653
Wall, arterial
connective tissue content, H533
mechanics, arginine vasopressin, physiologic doses, H167
passive mechanics, H533
strain-energy-density factor, H533
stress-strain, H533
Walton-Brodie arch
left ventricular, H88
Washout
metabolites, reactive hyperemia, H625
Water: *see also* Submersion
absorption, intestinal, E629
content, arterial, H533
economy, periventricular preoptic-hypothalamus and, R122
flow, adrenal steroid effects, bladder (toad), F532
flow, osmotic, pars recta, F340
intake: *see* Drinking; Thirst
metabolism, antidiuretic hormone and, F291
metabolism, carbon dioxide tension, F291
metabolism, pre- and postnatal, F59
reabsorption, and cell shape, proximal nephron, relation, F308
retention, antidiuretic hormone-induced, carbon dioxide pressure and, F291
retention, nonsteroidal anti-inflammatory drugs, F490
total body, spontaneous hypertension, F29
transport, pars recta, F340
tritiated, osmotic exchange, circulatory effects (frog), R172
Water breathers
myocardial inotropy of carbon dioxide (trout), R155
Wave propagation
thermodynamics, R85
Weak bases
electrophysiology and secretion, stomach (frog), E120
Weaning
circadian rhythm, development, E500
genetic obesity, development, E568
Weight
body, and cardiac cell dimension, allometric relationships, H123
body, intestinal bypass surgery, E389
body, regulation, hypothalamic extract and, E554
forelimb, in edema, H180
White blood cells: *see* Leukocytes

X-ray analysis
biological fluids, technique, F255
Xenon-133
cerebrovascular response to 5-hydroxytryptamine (baboon), H300
Xenon clearance
blood flow, cerebral (birds; duck), H230
metabolic depression, cerebral (baboon), H74
Xylose
fetomaternal transfer, placental (sheep), E32
D-Xylose
uptake, insulin-stimulated, soleus muscle, E407

Zeitgeber
circadian rhythm synchronization by light and food (squirrel monkey), R130
Zinc
absorption, prostaglandin E_2 role, E99
bacterial infection, liver, E399
binding, ligand, E99
excretion, biliary, metallothionein effects, E47
protein: *see* Protein
redistribution, kidney, E282
redistribution, liver, E282
Zinc-65
metallothioneins, in bacterial infection, liver, E399
Zipf-Mandelbrodt relation
thermodynamics, RF3

Author Index to Volume 234

Abou-Donia, M. B., H399
Ackermann, U., H21; F386
Adair, J. R., R223
Adam, P. A. J., E560
Adham, N. F., E99
Adibi, S. A., E494
Aguilera, A. J., F192
Agus, Z. S., E294; F22
Alexander, E. A., F146
Allotey, J. B. K., H35
Amatruda, J. M., E484
Anderson, L. L., E190
Andreoli, T. E., F332, F340, F349
Angell-James, J. E., H293, H739
Anuras, S., E60, E641
Anzai, T., H706
Arias, I. M., E542
Arthur, C., E641
Assali, N. S., H520
Atkins, J. M., H562
Ausman, L. M., R20
Ayres, J. J., E94

Bache, R. J., H399
Bahr, J. P., R183
Baig, H., H653
Bailie, M. D., R141
Baker, C. H., H384
Baksi, S. N., E622
Balch, O. K., E20
Barman, S. M., H223
Barnes, L. D., F171
Barnhart, J. L., E146
Baroody, R. A., F80
Barratt, G., H152
Bassett, D. J. P., E653
Bastl, C., F48
Battagin, R., H740
Bauer, J. H., F29
Baylis, C., F166
Bazer, F. W., R25
Becker, D. P., R167
Beeler, G. W., Jr., C115
Bell, P. D., F154
Bengele, H. H., F146
Benitez, L., C36
Bennett, T. D., H7
Ben-Sira, I., H315
Bentley, S. K., F68
Bentzel, C. J., F225
Bergman, E. N., E197
Berndt, T., F287
Bersohn, M. M., H215
Beyenbach, K. W., F238
Bhalla, R. C., H508
Binder, H. J., F48
Bito, L. Z., F80
Bishai, I., H117
Bishop, V. S., H157, H192
Bissell, D. M., C122
Bissell, M. J., C122
Bledsoe, S. W., E79
Bloom, D. S., H300
Bloor, C. M., H614
Blum, A. L., E157
Bodach, E., H117
Boerth, R. C., H28
Boettcher, D. H., H338
Bonjour, J.-P., F497
Booz, G., F424
Borer, K. T., E584
Borle, A. B., R29, R34
Bornstein, J., E521, E527
Bosanac, P., F22
Boulpaep, E. L., F182
Bove, A. A., H253, H711
Bowman, G. S., R209
Boyd, R. D. H., E32
Boyer, J. L., E584
Boylan, J. M., F514
Boynar, J. W., Jr., F199
Brace, R. A., H14
Braun, E. J., F270
Braunwald, E., H338
Brazy, P. C., F279
Brennan, R. W., R209
Brenner, B. M., F166, F393, F455
Brink, G. W., H557
Brinkman, C. R., III, H520
Brock, T., H508
Brody, M. J., H219
Brommage, R., C41
Brooks, W. W., H503, H592
Brown, J. D., H59
Brownfield, G. L., H289
Brynjolfsson, G., H465, H471
Buggy, J., R122
Bumpus, F. M., H447
Burg, M. B., F141, F480
Burks, D., H679
Burnell, J. M., F432
Burns, A., E97

Caldwell, P. R. B., H567
Cameron, D. P., E532
Camiscoli, J. F., F510
Candia, O. A., F297, F437
Cannon, J. K., F485
Canterbury, W. J., Jr., E399
Carbin, G. L., H59
Cardinal, J., F381
Cardona, R., E25
Carew, T. E., H392
Carey, R. A., H253, H711
Carone, F. A., F325
Carretero, O. A., F36
Casey, C., F461
Cassin, S., H346
Castro, G. A., R72, R188
Caton, D., R25
Chapman, S. K., F235
Chapnick, B. M., H133, H496
Charney, A. N., E629
Chatterjee, K., H597
Chen, H. I., H192
Cheung, J. Y., E70
Cheung, L. Y., E445
Chiariello, M., H305
Chin, T. Y., F446
Chiueh, C. C., H690
Cho, K. W., F506
Christensen, J., E641
Christophe, J., E579
Chuck, L., H608
Civan, M. M., F261
Coceani, F., H117
Cohen, J. J., F291
Cohen, M. V., H487
Cohen, S., E243, E359
Colacino, J. M., H230
Cole, R. P., H567
Coleman, T. G., H94
Combes, B., E146
Connett, R. J., C110
Connor, J. A., C155
Conover, C., E70
Conway, E. S., E660
Cooke, A. R., E60
Cooke, H. J., E257
Cooper, J. D., H646
Cooper, K., E417
Coraboeuf, E., H101
Corbin, J. D., H432
Corey, D. P., C56
Coroneos, N. J., H74
Corvol, P., E472
Cote, I., H460
Cotner, C. L., H312
Coulson, R. L., H253, H711
Covell, J. W., H392
Cox, A. C., H275
Cox, R. H., C146; H167, H280, H533, H542
Crane, R. K., E1
Cryer, P. E., E252
Cserr, H. F., R52, R61
Cunningham, S. G., H670
Cushman, S. W., E112
Custer, P., H679
Czech, M. P., E182

Dale, H. E., H80
Daly, D. S., E542
Daly, M. deB., H293, H730
Dampney, R. A. L., H67
Dandavino, A., H520
Danon, A., F64
Dantzler, W. H., F68, F238
Davidman, M., F117
Davis, D. L., H384
Davis, J. O., F10, F130
Dawson, D. C., E257
Deagen, J. T., E282
Debas, H. T., E375, E468
DeClue, J. W., R98
DeForrest, J. M., H701
DeHaan, R. L., C170
DeMason, L. J., C102
Dennis, V. W., F279
Derelanko, M. J., F510
Deshmukh, V. D., H74
Deth, R. C., C139
De Wied, D., E463
Diana, J. N., H439
DiBona, G. F., F192
Dietz, R., H629
Dinterman, R. E., E399
DiScala, V. A., F461
Đju, M. Y., E421
Dobbins, D. E., H180
Dobson, J. G., Jr., H638
Dogterom, J., E463
Donowitz, M., E629
Douglas, B. H., R98
Dousa, T. P., F393
Downing, S. E., H173
Drake, R., H266
Duarte, C. G., F466
DuBose, T. D., Jr., F97
Duchesneau, D., F381
Duffin, J., H646
Duffy, K. R., E301
Dunseth, D. W., E190

Eaton, R. P., E221
Edwards, M. T., H439
Ehrlich, B. E., R61
Eidelman, B. H., H300
Elsner, R., H730
Enobakhare, J. A., R98
Erecińska, M., C73, C82
Euler, D. E., H465, H471
Evan, A., F146
Evans, D. E., H199

Fairclough, P., E1
Fedor, J. M., H515
Feigen, L. P., H496
Feigl, E. O., H670
Feke, G. T., H315
Feldman, D., F490
Felix, R., C51
Fenstermacher, J. D., R52
Ferré, P., E129
Ferro, G., H305
Fine, L. G., F16
Fink, G. D., H219
Fishbein, M. C., H653
Fisher, A. B., E653
Fisher, D. A., E339
Fisher, R. S., E243
Flaim, K. E., E38
Fleisch, H., C51; F497
Flemming, J. E., H496
Flemström, G., E535
Foley, J. E., E112
Ford, C., H40
Fordtran, J. S., E417
Forte, J. G., E228
Foster, D. M., F402
Fray, J. C. S., F376
Frechette, D., H146
Freeman, R. H., F10, F130
Freychet, P., E348
Friedman, M. H., F215
Friedman, P. A., F415
Frohlich, E. D., H275
Fukuyama, T., H724
Fuller, C. A., R130

Gaar, K. A., H266
Gagliardino, J. J., E426
Gallina, D. L., R20
Galosy, R. A., H562
Galvin, M. J., H1
Gandolfi, R., F36
Gann, D. S., R223
Ganten, D., H629; F41
Ganten, U., F41
Garner, A., E535
Geis, G. S., H152
Gervin, C. A., H679
Gesser, H., R155
Gibbs, F. P., R110
Gibson, W. H., H706
Giebisch, G. H., F182
Gilbert, R. D., H289
Gillis, R. A., H199
Girard, J. R., E129
Glantz, S. A., H597
Glenn, T. M., H718
Glinos, A. D., C131
Goldberg, M., E294; F22
Goldfarb, R. D., H718
Goldfarb, S., E294; F22
Goldinger, J. M., F302
Goldstein, L., F514
Goodspeed, M. P., E262
Gordon, A. S., F510
Gordon, D. A., H146
Goresky, C. A., E542
Gougoux, A., F291
Gould, M. K., E407
Goyal, R. K., E273

Grabie, M., E294
Grabowski, C. J., E243
Granger, D. N., H14
Greenfield, J. C., Jr., H515
Greenway, D. C., C7
Grega, G. J., H180
Gregg, C. M., F135
Griffin, E. E., E306
Griffith, R. L., III, R167
Grimes, L. J., E554
Grossie, J., C90
Grossman, M. I., E286
Grubb, B., H230
Gruetter, C. A., H139
Guerin, M. A., C177
Gumucio, J. J., C102
Gunther, R. A., F371
Guppy, M., R136
Guth, P. H., E370
Guyton, A. C., R98

Haack, D., F106
Haas, J. A., F287
Haddy, F. J., H180
Haebara, H., H629
Handler, J. S., F532
Hardie, E., H471
Hargrove, W. C., III, E648
Harris, T. R., H679
Harvey, K. M. J., F510
Hassler, F., R3
Haworth, C., E32
Hayafuji, C., E515
Haymond, M. W., E252
Hayslett, J. P., F48, F182
Hebbelinck, M., E579
Heisler, N., R146
Heitmann, R. N., E197
Hellenbrand, W. E., H173
Hemberger, J. A., C191
Henrich, H., H352
Henry, D. P., E600
Hernandez, M. J., R209
Hernandez, R. E., E426
Heyndrickx, G. R., H338, H653
Hill, J. J., F308
Himms-Hagen, J., C7
Hiroshige, T., R39, R46
Hochachka, P. W., R136
Hodgson, B. J., E430, E439
Hoffman, L. H., E480
Hoffman, N. E., E637
Hoffman, W. E., F41
Holcombe, R. F., R196
Hollander, D., E54
Holle, J. P., R146
Hollinger, A. P., E157
Hollis, T. M., H701
Holm, R. A., E489
Homsy, E., F106
Hondeghem, L. M., H312
Hong, S. K., F302
Hoogstraten, J., C1
Hook, J. B., R141
Hookway, B. W., H186
Hoover, M. S., F235
Hopfer, U., F89
Hopkins, B. E., C59
Horsburgh. T., F485
Horwitz, L. D., H157
Hosomi, H., R104
Hostetter, T. H., F455
Hougen, T. J., C59
Huang, C. T., E25
Hudspeth, A. J., C56
Humes, H. D., F393, F455
Hyde, R. J., F452
Hyman, A. L., H133, H139

Iberall, A. S., R3, R85
Ichikawa, I., F393
Ilebekk, A., H525
Illingworth, J., H40
Inoue, K., E515
Isshiki, S., E333
Itoh, Z., E333
Iyengar, R., F247

Jackson, A. S., E94
Jacobs, T. P., E600
Jacquez, J. A., F402
James, T. N., H412
Janssens, W. J., H330
Jeanrenaud, B., E348, E568
Jefferson, L. S., E38
Jehle, J., H59
Johansen, K., R155
Johns, B. L., H7, H660
Johnson, A. K., R122
Johnson, D. G., E600
Johnson, J. A., R178
Johnson, P. C., H352
Jones, S. B., H465, H471
Jordan, H. N., E162

Kabra, P., H597
Kachadorian, W. A., F461
Kadowitz, P. J., H133, H139, H496
Kaehny, W. D., F291
Kakihana, M., H625
Kaneko, M., R39, R46
Kaplan, J. E., H323
Kaplan, S., R183
Kaplan, S. M., F510
Kastner, P. R., R178
Katz, J., E97
Kaye, M., E6
Kaye, M. P., H465
Keaney, N. P., H74
Keely, S. L., Jr., H432
Keener, M., C102
Keil, L. C., R66
Keiser, H. R., F532
Kekomäki, M., E560
Kelch, R. P., E611
Kelley, L. K., C27
Kennedy, C., H59
Kennedy, D. R., C96
Kenny, A. D., E622
Kent, R. S., H392
Kerr, J. C., E457
Khairallah, P. A., H447
Khosla, M. C., F130; H447
Kiil, F., H525
Kikuchi, Y., H724
Kimmich, G. A., C64
Kirk, K. L., F192
Kitabatake, A., H416
Klaassen, C. D., E47
Klassen, G. A., H35
Kleinman, L. H., H515
Kleinzeller, A., F424
Kliger, A. S., F48
Klocke, F. J., H163
Knapp, H. R., F64
Knox, F. G., F287
Kobayashi, K., E515
Koelz, H. R., E157
Kohrs, G., F106
Kokko, J. P., F97
Kolesari, G. L., R183
Kontos, H. A., H371, H582
Konturek, S. J., E64
Koopmans, H. S., E389
Kopin, I. J., H690
Korecky, B., H123
Korner, P. I., H293
Koschier, F. J., F302
Kotchen, T. A., E593
Krakoff, L. R., E267
Kralios, A. C., H260
Kramer, L., E343
Kravitz, J. J., E359
Krebs, H. A., F123
Krezoski, S. O., C102
Krieger, E. M., H552
Kromer, U., C1
Kumada, M., H67
Kuroiwa, A., H724
Kurz, K. D., H573
Kutner, M. H., E327
Kwiecién, N., E64

Lane, J. R., H74
Largiadèr, F., E157
Larsen, L. A., F432
Larson, K., E445
Lau, K., E294
Leaf, A., F1
Lee, J. C., H173
Lee, S. H., F302
Lee, S. P., E575
Lefer, A. M., H1
Leffler, C. W., H346
Lekven, J., H525
Le Marchand-Brustel, Y., E348, E568
Leskiw, M. J., E504
Leusen, I., H653
Levasseur, J. E., H371
Levine, G. A., C122
Levine, S. E., H14
LeWinter, M. M., H392
Li, J. B., E38
Lickley, L., E213
Lien, J., E6
Lifschitz, M. D., F171
Limas, C. J., H426
Lin, C. I., H477
Lincoln, T. M., H432
Livingston, J. N., E484
Lockwood, D. H., E484
Lohse, C. L., F452
Loizzi, R. F., C177
Long, W. B., E236
Loose, D. S., F490
Lown, B., H503, H592
Lowry, S. F., E445
Lundgren, D. W., E451

Machen, T. E., E228
Maciejko, J. J., H180
Macknight, A. D. C., F1
Mahany, T. M., R172
Mailman, D. S., F247
Malathi, P., E1
Malvin, R. L., F135, F506
Manders, W. T., H244
Mandin, H., F117
Mangos, J., R216
Mann, J. F. E., H629
Mapes, C. A., E399
Mapes, J. P., F123
Marciniak, D. L., H180
Marliss, E. B., E129
Marshall, J. M., C96
Martin, J. M., E554
Martin, J. R., E314
Masterton, C. E., H399
Mathe, A. A., H133
Mathey, D. G., H597
Matsuguchi, H., H724
Matzuda, H., E500
McCalden, T. A., H300
McDonald, D. G., R201
McDowall, D. G., H74
McHale, P. A., H399
McKinney, T. D., F141
McMahon, B. R., R201
McMurtry, I. F., H186
McNamara, D. B., H133, H139
McNamara, E. R., F146
Meagher, R. C., F510
Meiri, H., C96
Meiri, U., C96
Meiss, R. A., C14
Menard, J., E472
Mendelow, A. D., H300
Menzel, D. B., H399
Menzie, J. W., E480
Michelakis, A. M., E25, E480
Migliorini, R. H., R115
Millard, R. W., H244
Miller, D. L., C102
Miller, J. D., R167
Miller, T. B., Jr., E13
Miller, W. L., H80
Mishkin, S., E542
Mitchell, J. H., H562
Mitchell, R. W., C1
Mitsutake, A., H724
Möhring, B., F106
Möhring, J., F106
Mok, C., E554
Molé, P. A., H421
Monos, E., H167
Moody, F. G., E445
Moore, J. W., C162
Moore-Ede, M. C., R130
Moores, W. Y., H597
Morgan, H. E., E70
Moses, A. M., E339
Mouw, D. R., F59
Muldoon, S. M., H235
Mullen, J. L., E648
Muñoz-Ramirez, H., H447
Munson, P. J., E339
Murao, S., H625
Murray, R. D., F506
Mustafa, S. J., H718

Nahmias, A. J., C170
Nair, P., H361
Nakagaki, O., H724
Nakamura, M., H724
Nakamura, S., F325
Nakamura, Y., E515
Nakane, H., E472
Nakane, Y., E472
Nakazawa, H. K., H163
Nations, J. K., R188
Navar, L. G., F154, F357
Navari, R. M., H371, H582
Neely, W. A., H706
Nelems, J. M., H646
Nellens, P., H653
Neuman, M. W., C41
Neuman, W. F., C41, C51
Neville, M., E617
Newcomer, W. S., E168, E177
Newman, W. H., H88
Ng, F. M., E521

Nishiki, K., C73, C82
Norman, R. A., Jr., R98
Norwich, K. H., E84
Novin, D., E314
Nudel, D. B., H173
Nuwayhid, B., H520

Oates, J. A., F64
Oelz, O., F64
Oh, S. H., E282
Oka, T., E451
Okajima, F., E106
Okuda, Y., H74
Oliver, J. R., H293
Olley, P. M., H117
Olson, R. D., H28
Oparil, S., F325
Opdyke, D. F., R196
Oram-Smith, J. C., E648
Osada, H., H646
Osis, D., E343

Padiyar, R., H146
Pagani, M., H244
Pape, G., E94
Paradise, N. F., C115
Park, C. S., F506
Parmley, W. W., H597, H608
Parsons, R. H., R172
Partridge, L. D., C155
Patlak, C. S., F340, F480
Patterson, J. L., Jr., H371, H582
Paul, H. S., E494
Pector, J.-C., E579
Pegorier, J. P., E129
Peterlik, M., E379
Petersen, H., E286
Peterson, D. F., H157, H192
Peterson, L. H., H167
Peterson, T. M., H614
Petri, M., F106
Phillips, M. I., H629; F41
Phillips, R. W., E162
Piacsek, B. E., E262
Pickerodt, V. W. A., H74
Pirkle, J. A. E120
Pitts, R. F., F485
Pohl, C. R., R110
Pollock, M. L., E94
Poon, T. K.-Y., E532
Poulsen, J. H., E79
Poupa, O., R155
Power, G. G., H289
Preiser, H., E1
Preston, C., F497
Priola, D. V., H460
Pritchard, J. B., F424
Pullman, T. N., F325
Putney, J. D., E660

Quebbemann, A. J., F446
Quilter, R., H740
Quinton, P. M., F255

Rabinowitz, B., H608
Rabinowitz, L., F371
Radecki, T., E64
Radziuk, J., E84
Rahiala, E.-L., E560
Rakusan, K., H123
Rall, D. P., R52
Ramey, E. R., H454
Ramón, F., C162
Ramsay, D. J., R66
Ramwell, P. W., H454
Randall, W. C., H465, H471
Randles, J., C64
Ranney, H. M., C36
Raper, A. J., H582
Rasetti, G., H305
Rattan, S., E273
Reach, G., E472
Read, N. W., E417
Reaven, E. P., E277
Reaven, G. M., E277
Rebolledo, O. R., E426
Rebuck, A. S., H129
Reczek, P. R., F225
Reddy, W. J., E97
Reed, J. S., E584
Regen, D. M., E70
Rehm, W. S., E120
Reibel, D. K., H620
Reichman, M., E389
Reis, D. J., H67
Reisch, J., H562
Rembert, J. C., H515
Renfro, J. L., F522
Rengo, F., H305
Resnik, R., H557
Reynolds, D. G., E457
Ribeiro, A. B., E267
Richardson, D. K., E182
Rim, E., E54
Risser, T. R., E277
Ritter, R. C., E20, E617
Riva, C. E., H315
Roberts, D. L., H163
Roberts, G. S., E243
Rodbard, D., E339
Roelke, M., E617
Roos, S. D., H186
Rosato, E. F., E648
Roselino, E. S., R115
Rosenblum, W. I., H371, H582
Ross, G., E204, E213
Roth, S. H., E319
Rothe, C. F., H7, H660
Rothmann Hamburger, S. A., F510
Rovetto, M. J., H620
Roy, M., F510
Rubin, S. A., H740
Rubio, R., C181
Rudman, D., E327
Russler, D., R216
Rutherford, J. D., H244
Ruzycki, S. M., C27
Ryan, J. P., E44, E301
Ryave, S., E44

Saba, T. M., H323
Sabbah, H. N., H696
Saccà, L., H305
Sachs, G., F247
Sackett, G. P., E489
Safer, B., H40
Saito, M., E500
Sakurada, O., H59
Salans, L. B., E112
Salanthé, E. P., H52
Salgado, H. C., H552
Samar, R. E., H94
Sanders, K. M., E204, E209
Sanders, M., H614
Sanders, S. S., E120
Saüberli, H., E157
Schafer, J. A., F332, F340, F349
Schaffer, S. W., H40
Schanbacher, L. M., R188
Schanker, L. S., C191
Scheid, P., R146
Schelling, P., F41
Scher, A. M., H670
Scheuer, J., H215
Schiller, H. S., E489
Schlondorff, D., F16
Schmid, P. G., F41
Schmidt, R. W., F472
Schmidt-Nielsen, K., H230
Schoen, H. F., F297
Schofield, B., E319
Schramm, L. P., R223
Schubert, R. W., H361
Schwartz, A. L., E560
Scicli, A. G., F36
Sclafani, A., E389
Scott, J. B., H180
Seldin, D. W., F97
Sewell, R. B., E637
Shah, S. D., E252
Shaklai, N., C36
Sharpe, M. C., R66
Shepherd, A. P., E248
Shiau, Y.-F., E236
Shigenobu, K., C181
Shinsako, J., R66
Shoemaker, R. L., E120
Shrier, A., C170
Siebert, W. M., R161
Siewert, R., E157
Silen, W., E228
Silverberg, A. B., E252
Simonelli, C., E221
Singh, D., H508
Singh, M., E511
Singh, V. N., E511
Skoog, C., C1
Slutsky, A. S., H129
Smallwood, R. A., E637
Smith, C. H., C27
Smith, E., E370
Smith, J. W., R72
Smith, T. W., C59
Snape, W. J., Jr., E359
Sobocinski, P. Z., E399
Sokoloff, L., H59
Solomon, S., F318
Solomon, T., E286
Song, M. K., E99
Song, Y. K., F302
Soodak, H., R3
South, F. E., R178
Spann, J. F., H253, H711
Spannhake, E. W., H133
Spencer, H., E343
Spenney, J. G., E606
Sperelakis, N., C181
Stacey, T. E., E32
Stanton, H. C., E137
Statham, N. J., E262
Stein, J. H., F171
Stein, P. D., H696
Stein, T. P., E504, E648
Stephens, G. A., F10
Stephens, N. L., C1
Stephenson, R. S., C198
Stinnett, H. O., H192
Stoll, R. W., F199
Stowe, D. F., H597
Strauss, H. C., H399
Suda, M., E500
Suga, H., H416
Sugishita, Y., H625
Sullivan, H. G., R167
Sulzman, F. M., R130
Sutton, E. T., H384
Swan, K. G., E457
Szyjewicz, J., F207
Takahashi, K., E515
Takahashi, Y., E515
Takayanagi, R., E333
Takeuchi, S., E333
Talano, J., H465
Talo, A., E430, E439
Talwalkar, R. T., E593
Tan, S. Y., F490
Tanner, G. A., F112
Tavoloni, N., E584
Taylor, A. E., H14, H266
Testoni, F. J., F452
Thomas, C., F154
Tobia, A. J., H275
Toda, N., H404
Torretti, J., F415
Townsend, R. M., H597
Trimarco, B., H305
Trizna, W., F16
Troehler, U., F497
Trout, D. L., E660
Troutman, S. L., F332, F340
Tsagaris, T. J., H260
Tsakiris, A. G., H146
Tsuchiya, M., H275
Turner, J. M., H74
Turner, M. D., H706
Tyberg, J. V., H597, H608
Tyce, G. M., E365; H235
Tyler, T. L., H346

Uchikawa, T., R29, R34
Ui, M., E106
Urthaler, F., H412
Uzunova, A. D., H454

Vander, A. J., F59
VanderWeele, D. A., E314
Vanhoutte, P. M., H235, H330
Vannucci, R. C., R209
van Wimersma Greidanus, TJ. B., E463
Vassalle, M., H477
Vasselli, J. R., E389
Vatner, S. F., H210, H244, H338, H653
Veiga, J. A. S., R115
Venkataraman, R., H52
Verbeustel, S., E579
Verrier, R. L., H503, H592
Vinay, P., F123
Violini, R., H305
Visscher, M. B., C115
Vorherr, H., F318
Vorherr, U. F., F318
Vranic, M., E84, E213

Wagner, J., F59
Wallace, H. W., E504, E648
Wallace, K. B., R141
Walsh, G. M., H275
Ward, A., E94
Ward, C. A., H646
Ward, D. G., R223
Ward, R. H. T., E32
Warnock, D. G., F480
Wasserman, R. H., E379
Watkins, B. E., F10
Watkins, M. L., F332
Webb, R. C., H508
Weber, H., F16
Wechsler, A. S., H515
Weedon, A. P., E32
Weerasinghe, C., E527
Wei, E. P., H371, H582
Weinstein, S. W., F207
Weisbrodt, N. W., R188

Weiss, J. B., E236
Weitzman, R. E., E339
Welch, W. J., E593
Welling, D. J., F54, F308
Welling, L. W., F54, F308
Wen, S.-F., F199
Weswig, P. H., E282
Whalen, W. J., H361
Whanger, P. D., E282
White, E., H117
White, F. C., H614
Whitfield, C. F., E70
Whitnall, M. H., H67
Wiatrowski, E., E343
Wildenthal, K., E306
Williams, R. H., E600; F154
Williamson, J. R., H40
Willis, L. R., F29
Wilson, D. F., C73, C82
Winand, J., E579
Wittenberg, B. A., H567
Wong, K.-L., E365
Woo, S. K., E137
Wood, C.M., R201
Woods, J. R., Jr., H520
Woods, W. T., H412
Wray, H. L., C131
Wurster, R. D., H152, H223
Wyatt, H. L., H608

Yamagishi, T., E375, E468
Yates, F. E., R1, R81, R159
Yates, J. C., E319
Yu, K. T., E407
Yü, T.-F., E421
Yum, M. N., F112

Zanetta, A. C., E426
Zatzman, M. L., R178
Zehr, J. E., H573
Zusman, R. M., F532

Subject and Author Index to Volume 235
American Journal of Physiology

American Journal of Physiology:
Cell Physiology

American Journal of Physiology:
Endocrinology, Metabolism and Gastrointestinal Physiology

American Journal of Physiology:
Heart and Circulatory Physiology

American Journal of Physiology:
Regulatory, Integrative and Comparative Physiology

American Journal of Physiology:
Renal, Fluid and Electrolyte Physiology

Page — Issue Guide

American Journal of Physiology
Volume 235

July	C1–C72	E1–E96	H1–H116	R1–R98	F1–F76
August		E97–E248	H117–H265		F77–F162
September	C73–C146	E249–E344	H267–H360	R99–R199	F163–F264
October		E345–E450	H361–H460		F265–F385
November	C147–C278	E451–E576	H461–H618	R201–R293	F387–F514
December		E577–E762	H619–H844		F515–F659

Subject Index to Volume 235

A23187: *see* Ionophores
Abdominal vascular capacitance
  reflex responses from aortic baroreceptors, H488
Absorptiometry
  photon, postmenopausal women, E82
Absorption: *see* specific subject and site
Acclimation
  water restriction, body fluid distribution, R237
4-Acetamido-4′-isothiocyanostilbene-2,2′-disulfonic acid
  pH transients, diaphragm muscle, C49
Acetazolamide
  chloride absorption-base excretion, coupling, isolated skin (frog), F33
  cochlear potentials, F317
  potassium reabsorption and secretion, perfused kidney (bullfrog), F26
  volume expansion, compensatory adaptation, F528
Acetoacetate
  ketone body turnover and net ketone production, hepatic, E238
  ketone utilization, fetal hepatocytes, E330
Acetoacetyl-CoA thiolase
  ketone utilization, fetal hepatocyte, E330
Acetylcholine
  acute renal failure, norepinephrine-induced, F131
  cyclic adenosine monophosphate, pancreatic islets, E493
  insulin release, pancreatic islets, E493
  membrane potentials, pancreatic islets, E493
  norepinephrine release by sympathetic nerve stimulation, lungs, H803
Acetylsalicylic acid
  cation transport, gastric mucosal cells, E16
Acid
  extrusion, pH transients, diaphragm muscle, C49
  loading, pH transients, diaphragm muscle, C49
  secretion, urinary epithelia, hydrogen ion transport and, F77
Acid-base disturbances
  chronic metabolic, plasma anion gap changes, F291
Acidification
  urinary, hydrogen ion transport and, F77
Acidosis
  ammonia metabolism, F265
  gluconeogenic enzymes, distribution, nephron, F246
  intracellular, myocardial ischemia, Tris effects, H167
Acidosis, metabolic
  blood pH, potassium, and phosphorus, relationship, F345
  hyperchloremic, plasma anion gap changes, F291
  mineral and nonmineral acids, F345
Acinar cells: *see* Pancreatic acinar cells
Acrodermatitis enteropathica
  zinc-binding ligands in milk, E556
ACTH: *see* Adrenocorticotropin
Actinomycin D
  enzyme induction, liver, E374
Acute renal failure: *see* Kidney failure
Adenine nucleotides
  cytosolic, phosphorylation state, heart, C213
Adenosine
  blood flow, postocclusive renal, F286
  capillary fluid exchange, intestinal, H707
  coronary blood flow characteristics and transmural distribution (miniature pig), H601
  coronary response to prostaglandins, H400
  hemodynamics, intestinal, H707
  microcirculation, intestinal, H707
  oxygen delivery, intestinal, H707
Adenosine diphosphate
  internal, electric current generation, giant axon (squid), C63
Adenosine monophosphate, cyclic
  acetylcholine-stimulated pancreatic islets, E493
  adrenal, nycthemeral rhythm and ACTH, R210
  angiotensin II effects, cardiac, H281
  dibutyryl, submandibular secretions, C256
  gonadotropin release, E586
  hydrochloric acid and, oxyntic cell, gastric mucosa (bullfrog), E140
  luteinizing hormone response, sex difference, E291
  parathyroid hormone effects, glomeruli, F458
  peptide action, pancreatic acinar cells (amphibian), E112
  pituitary, response to gonadotropin-releasing hormone, sex difference, E37
  prostaglandin effects, glomeruli, F458
  prostaglandins and, interaction, gastric mucosa, E546
  sodium ion transport, bladder (toad), F359, F586
Adenosine triphosphatase: *see also* Calcium-ATPase; Calcium-magnesium-ATPase; Sodium-potassium-ATPase
  bicarbonate-stimulated, in bile salt-independent fraction of bile flow, E158
  calcium transport, cardiac sarcoplasmic reticulum, in hyperthyroidism, H745
  myofibril, neonatal skeletal muscle, thyroid deficiency and, C97
Adenosine triphosphate
  chemical energetics, smooth muscle, C1
  insulin binding to soleus muscle, E606
  hydrolysis, sarcoplasmic reticulum, in hyperthyroidism, H745
  levels, myocardial ischemia, Tris effects, H167
  synthesis, thermodynamics, R99
Adenyl cyclase
  cyclooxygenase and, distal nephron, F451
Adenylate cyclase
  prostaglandins and, interaction, gastric mucosa, E546
  prostaglandin-stimulated, glomeruli, F458
  stimulation, parathyroid hormone (human and bovine), F96
ADH: *see* Antidiuretic hormone; Vasopressin
Adipocytes: *see* Fat cells
Adipose tissue
  brown: *see* Brown fat
  diet-induced obesity, E279
  erucic acid metabolism, E509
  white, phosphoenolpyruvate carboxykinase activity, E197
Admittance plethysmography: *see* Plethysmography
Adrenal cortex
  angiotensin metabolism with adrenal transplants (sheep), E525
  binding (sheep), E525
Adrenal glands
  chromogranin synthesis (bovine), E475
  cyclic AMP, nycthemeral rhythm and, R210
  dopamine β-hydroxylase synthesis (bovine), E475
  nycthemeral rhythm, responsiveness to ACTH, R210
Adrenal medulla
  protein synthesis (bovine), E475
Adrenal state
  glucocorticoid induction of liver enzymes, E374
Adrenal transplants
  angiotensin metabolism (sheep), E525
Adrenalectomy
  angiotensin II, central effects, H392
  gluconeogenesis, hepatic, E354
  sucrase, jejunal, circadian rhythm, E437
Adrenergic agonists
  submandibular excretory ducts, F548
Adrenergic blockade: *see* Blockade
Adrenergic receptors: *see* Receptors
Adrenergic vasoconstriction
  hindlimb muscles, H482
  middle cerebral artery (goat), H131
Adrenocorticotropin
  adrenal responsiveness, nycthemeral rhythm in, R210
  fibrinogen response, H223
Afferent nerves
  cardiac: *see* Cardiac nerves
  renal excretion during volume load, H670
Afferent pathways
  reflex circulatory changes, H759
Afferent stimulation
  pericoronary nerve, reflex circulatory changes, H759
Afferents, vagal: *see* Vagal afferents
Aftercontraction, cardiac: *see* Muscle, heart
Afterload
  isovolumic pressure fall, H701
Aging
  amino acid transport, diaphragm, E304
  cardiac muscle mechanics, spontaneous hypertension, H2
  glucocorticoid induction of liver enzymes, E374
  pituitary cyclic AMP response to gonadotropin-releasing hormone, E37
β-Agonists
  length-tension curves, in volume overload heart failure, H690
Airway
  hypoxia: *see* Hypoxia
Alanine
  gluconeogenesis (ovine fetus and lamb), E448
Albumin
  fraction V bovine serum, potassium ions, loss, renal tissue, F228
  substrate-free, perfused kidney, F52

Aldosterone
angiotensin II hypertension, F174
binding, urinary bladder epithelium (toad), C82
cation transport, cortical collecting tubules, F576
hydrogen ion transport, urinary epithelia, F77
receptors: *see* Receptors
secretion, adrenocortical, angiotensin metabolism and (sheep), E525
secretion, adrenocortical, with adrenal transplants (sheep), E525
sodium transport, bladder (toad), F586
Alkalosis
metabolic, plasma anion gap changes, F291
mineralocorticoid, potassium ion deprivation, renal, F298
respiratory, hydrogen ion secretion, distal, F203
Alpha-fetoprotein: *see* α-Fetoprotein
Alveolar macrophages, phagocytizing chemiluminescence, C103
oxygen, reactive forms, C103
Amiloride
calcium transport, distal nephron, F367
L-Amino-acid decarboxylase inhibitor
serotonin, brain content, and cold-induced metabolism, R41
Amino acid transferase
branched chain, keto acids and, isolated perfused kidney, E47
Amino acids
absorption, in streptozotocin diabetes, E457
infusion, urinary zinc excretion, F40
intestinal hyperemia and, H677
metabolism, isolated perfused kidney, F376
plasma, transplacental gradients, H200
release, keto acids and, kidney, E47
Amino acids, transport
diaphragm, insulin resistance, newborn, E304
growth hormone supply and, E316
intestinal, C73
preincubation, E304
system A, E304
vitamin B_6 deficiency, E316
p-Aminohippurate
prostaglandin E excretion, F473
transport, anaerobic, kidney, F278
transport, energy-depleted renal cells, F278
p-Aminohippuric acid
uptake, separated tubules, renal fuels for, F137
α-Aminoisobutyrate
transport, diaphragm, newborn, E304
Aminophylline
adenosine effects, intestinal, H707
Ammonia
activity, zinc deficiency, E203
excretion, glutamine metabolism, renal, E261
excretion, high protein diet, E261
metabolism, F265
urinary, protein turnover measurement, end product, E165
utilization, zinc deficiency, E203
Ammoniagenesis
mitochondrial, high protein diet, E261
Ammonium-sodium exchange
freshwater mussel, R35
Amniotic fluid
α-fetoprotein (ovine), E27
Amphotericin B
ion permeation, bladder epithelium (toad), F507
Amplifier
operational, voltage clamp, C69
Amylase
caerulein-secretin interaction, trophic effects, pancreas, E714
release, pancreatic acinar cells (amphibian), E112
release, pancreatic acini, E743
release, secretagogue action, pancreatic acini, E517
Anastomoses
capillary, heart, H321
Androgens
pituitary cyclic AMP response to gonadotropin-releasing hormone, E37
sex differences, cardiovascular responses, H242
Anaerobiosis
insulin binding to soleus muscle, E606
Anemia
heart sounds, accentuation, blood viscosity and, H664
ventricular performance during hemodilution, H767
water content, myocardial, during hemodilution, H767
Anesthesia
microvascular responses to hemorrhage, H753
Angiotensin
adrenocortical metabolism with adrenal transplants (sheep), E525
antagonists, angiotensin II inhibition (eel), H95
contraction, aorta and portal vein, H208
receptor: *see* Receptors; Blockade
renal vasculature, humoral and mechanical factors, R64
renin release, inhibition, kidney slices, F62
Angiotensin II
antagonists, hemorrhage, renal, F46
blood flow, postocclusive renal, F286
cyclic AMP concentrations, atrial, H281
dopamine β-hydroxylase release, cardiac, H281
esophageal smooth muscle (opossum), E738
exogenous and endogenous, isolated perfused kidney, F605
hemorrhage, renal dynamics, F46
hypertension, renal hemodynamics, F174
inhibition (eel), H95
intraventricular, mediated by sympathetic nervous system, H392
pressor response, hypoxic lungs, H104
renin release, atrial pressure and, H175
renin release, inhibition, kidney slices, F62
Angiotensin III
renin release, inhibition, kidney slices, F62
Anion gap
plasma, in chronic metabolic acid-base disturbances, F291
Anions
superoxide: *see* Superoxide anions
transport, bumetanide effects, proximal tubule, F403
unmeasured, chronic metabolic acid-base disturbances, F291
Anoxia
energetic state and potassium loss, myocardial, H537
Antiarrhythmic drugs
cardiac ischemia, H574
Antibiotics
chemiluminescence, phagocytizing alveolar macrophages, C103
prednisolone-induced intestinal lesions, E703
Antidiuresis
renal papillary epithelium, F69
Antidiuretic hormone
collecting duct alterations, intramembranous, F440
prostaglandin excretion, renal, E624
prostaglandin synthesis, renal, F180
sodium entry kinetics, skin (frog), C35
sodium ion transport, bladder (toad), F359
spontaneous hypertension, H361
Anti-insulin serum
gluconeogenesis and, E354
Antiperistalsis
gastric and duodenal (chicken), E670
Antrum
gastric, efferent vagal fibers, discharge, E366
gastric, electrical and mechanical effects of cholecystokinin, E324
gastrin release, inhibitor, E410
gastrin release, organ culture study, E410
smooth muscle response to bethanechol and progesterone, E422
Aorta
calcium pools, Tris effects, H208
contraction, Tris effects, H208
diameter, measurement, techniques (dog, sheep), H610
mechanical activity, spontaneous, Tris effects, H208
pressure-dimension techniques (dog, sheep), H610
Aortic baroreceptors: *see* Receptors
Aortic valve
heart sounds, accentuation in anemia, H664
Apparatus and techniques: *see* specific subject and site; *see also* Models
Appetite: *see* Feeding
Arachidonic acid
androgen-mediated sex differences, cardiovascular responses, H242
coronary vascular response to increased myocardial oxygen consumption, H372
fibrinogen response, H223
mesenteric vascular bed, H326
prostaglandin-adenylate cyclase-cyclic AMP interaction, gastric mucosa, E546
Arginine
metabolism, isolated perfused kidney, F376
Arginine vasopressin: *see* Vasopressin
Arousal state
temperature regulation (marmot), R82
Arrhythmias
countershock, myocardial cells (chick embryo), H214
reentrant excitation, cardiac, H1
ventricular defibrillation threshold, temporal stability, H553

Arterial pressors: *see* Pressors
Arterial pressure: *see* Pressure; Blood pressure
Arterial smooth muscle: *see* Muscle, smooth
Arteries
  glucose and lactate, plasma concentrations (sheep), E487
  small, responses to hemorrhage, anesthetics and, H753
Arteriography
  coronary stenosis, in unsedated dogs, H350
Arterioles
  responses, in contracting muscle, H494
  vasodilation: *see* Vasodilation
Arteriovenous fistula: *see* Fistula
Artifacts
  oxygen uptake, myocardial reactive hyperemia, H87
Ascites
  mobilization in cirrhosis, following furosemide or mannitol diuresis, F12
Asialo-PMSG: *see* Gonadotropin, pregnant mares serum
Aspartate
  ^{14}C-labeled, gluconeogenesis, insulin effects, E22
Asphyxia
  vascular changes, skeletal muscle, H72
Aspirin: *see* Acetylsalicylic acid
Atomic model: *see* Models
ATPase: *see* Adenosine triphosphatase
Atria: *see* Heart atria
Atrioventricular junction
  pacemaker activity, autonomic control, H308
Atrioventricular nodal potentials: *see* Potentials
Atropine
  acetylcholine-stimulated pancreatic islets, E493
  deoxyribonucleic acid synthesis, gastric mucosa, E565
  pancreatic polypeptide response to a meal, E443
  salivary secretion (tick), R76
  sodium transport, cholinergic inhibition, bladder (toad), F564
Attenuation factor
  compartmental models, neurons, R93
Auerbach's plexus
  stimulation, polarity of effects on longitudinal muscle, E345
Auscultation
  heart sounds, accentuation in anemia, H664
Autonomic inhibition
  ventricular, exercised spontaneously hypertensive rat, H193
Autonomic nervous system
  digitalis toxicity, H531
  hemorrhage heart rate with volume overload, H422
  ion transport, intestinal, E402
  pacemaker activity, atrioventricular junction, H308
Autoregulation: *see also* Blood flow
  diuresis, exaggerated, in spontaneous hypertension, F409
  homeometric, H267
  myogenic responses, gut, H157
  oxygen uptake, myocardial reactive hyperemia, H87
  renal, neural input, humoral and mechanical factors, R64
Axon
  slow sodium inactivation, trypsin modification (crayfish), C238
Axon, giant
  action potential (squid), C55
  electric current generation (squid), C63
  resting potential (squid), C55, C63
  sodium pump (squid), C55, C63
  sodium-sodium exchange (squid), C63

Backflux hypothesis
  sodium-to-chloride permeability, proximal convoluted tubule, F592
Balloon
  gastric, intestinal motility monitoring, E532
Baroreceptors: *see* Receptors
Baroreflex: *see* Reflexes
Base
  excretion, and chloride absorption, coupling, skin (frog), F33
Basement membrane: *see* Membrane
Behavior
  hypometabolic, blood flow redistribution, R89
Benzolamide
  chloride gradient, thin loop of Henle, F192
Beta agonists: *see* Agonists
Beta cells: *see* Pancreatic β-cells
Bethanechol
  esophageal sphincter, lower, responses (baboon), E42
  gastrin release, in gastric fistula, E720
  mechanical responses after progesterone, antral and gastroduodenal smooth muscle, E422
  pancreatic polypeptide release, E443
Bezold-Jarisch reflex: *see* Reflexes
Bicarbonate
  buffered Krebs-Ringer, contraction, vascular smooth muscle, H208
  ^{14}C-labeled, incorporation into blood glucose, insulin and fasting effects, E22
  hydrogen ion removal, mechanisms, stomach and duodenum, E692
  ion permeation and, proximal tubule (*Necturus*), F89
  secretion, forestomach (llama), E1
  transport, and bile salt-independent fraction of bile flow, E158
Bile
  β-carotene absorption, intestinal, E686
  diversion, chylomicron composition and, E183
  intestinal hyperemia, H677
Bile acids
  diversion, cholesterol oxidation (primate), R55
  feedback (primate), R55
Bile flow
  bile salt-independent fraction, bicarbonate and, E158
Bile salt
  biliary permselectivity and, E570
  independent fraction of bile flow, bicarbonate and, E158
Biliary canalicular membrane
  bioelectric constraints, E570
  permselectivity, E570
Biliary clearance
  bile salt-associated and bile salt-independent fractions, E570
  carboxylinulin, E570
  ferrocyanide-sucrose, E570
  methoxyinulin, E570
  probe analysis, permselectivity, E570
Biliary tract
  obstruction, cholesterol oxidation and (primate), R55
Biliary transport
  electrolytes, E158
Binding
  membrane surface charges, C109
Bioassay
  dose-response curves, sigmoidal, simultaneous analysis, E97
Bioenergetics
  proton semiconductors and energy transduction, R99
Biological systems
  proton semiconductors and energy transduction, R99
Biology
  molecular, control theory, R205
  physical, complexity and limits to knowledge, R201
Biomechanics: *see* specific site or subject
Biothermal injury
  subclinical and clinical, R228
Bladder: *see* Urinary bladder
Blockade
  α-adrenergic receptors, cardiovascular responses, F199
  β-adrenergic, vasoconstrictor and vasodilator responses to mannitol, coronary artery, H728
  β-adrenergic, hemodilution and, H767
  angiotensin receptors, cardiovascular responses, F199
  H_1 and H_2 receptors, esophageal sphincter, lower (baboon), E42
  slow channel, myocardial, by valinomycin, glucose reversal, H46
  vagal, reflex circulatory changes, H759
Blood-brain barrier
  iodide efflux, after injection into caudate nucleus, F331
  nonelectrolytes, permeability, H299
  sympthetic nerves and (dog, cat, monkey), H544
  thiocyanate efflux, after injection into caudate nucleus, F331
Blood flow: *see also* Circulation; Flow
  asphyxia, skeletal muscle, H72
  autoregulation: *see also* Autoregulation
  autoregulation, spatial and temporal perfusion, heterogeneity, myocardium, H64
  brain, regional, electrical activation of angiotensin and osmosensitive sites, H445
  forearm, baroreceptors, in renin control, H29
  gastrointestinal wall, motility and, H34
  hindlimb muscles, H482
  limb, admittance plethysmography, H821
  myocardial, awake pigs, H435
  myocardial ischemia, dopamine analogue effects, H118
  nutrient, measurement, methods, H592
  organ, rest and meditation, R89
  redistribution, hypometabolic behavior and, R89
  regional, measurement by combined Fick and microsphere methods, H357

Blood flow (*continued*)
resistance, hypothermia, H136
serotonin, brain content, and temperature, R41
skin, heating and cooling effects (alligator), R160
Blood flow, cerebral
autoregulation (cat, monkey), H56
photoelectric method for measurement, H56
sympathetic nerves and (dog, cat, monkey), H544
regulation, fetus (ovine), H162
Blood flow, coronary
awake pigs, H435
characteristics (miniature pig), H601
collateral, myocardial ischemia, dopamine analogue effects, H118
collateral, sympathectomized ventricle, H429
hemodilution, H767
indomethacin, H372
interdependence with cardiac function and oxygen extraction, H784
ischemic arrest and reperfusion, H619
myocardial oxygen consumption and, H237, H372
phasic (miniature pig), H601
reactive hyperemia, myocardial, H87
regional, spatial and temporal perfusion, heterogeneity, myocardium, H64
right ventricular systolic hypertension (pony), H628
rubidium-86 integral extraction ratios, H794
transmural distribution (miniature pig), H601
Blood flow, intestinal
distribution, adenosine effects, H707
myogenic responses, H157
sympathetic stimulation, H40
sympathetic stimulation, mucosal, H40
Blood flow, renal
atrial pressure, graded reduction, H175
hemorrhage, control, F46
histamine receptors, F570
measurement, methods, H592
neutral input, humoral and mechanical factors, R64
perfusate osmolality, F352
plasma volume expansion, F156
postocclusive, F286
prostaglandin inhibitors, F338
renin release, H175
stop-flow pressure feedback, F352
Blood platelets: *see* Platelets
Blood pressure: *see also* Pressure
androgen-mediated sex differences, cardiovascular responses, H242
angiotensin II, intraventricular, H392
arterial, angiotensin II hypertension, F174
arterial, cardiogenic shock, H657
end-diastolic volume, ventricular (pig), H182
mesotocin effects (bullfrog), F151
renal sodium handling and, in spontaneous hypertension, F425
systolic, cadmium-induced hypertension, H385
systolic, prostaglandin E_2 and analogues, effects, H223
Blood resistivity
admittance plethysmography, limb (human), H821
Blood sampling
intracaval cannulation for hepatic venous blood, H262
Blood viscosity: *see* Viscosity
Blood volume: *see also* Volume
cerebral, regional, photoelectric method for measurement (cat, monkey), H56
end-diastolic, ventricular, vectorcardiographic potentials (pig), H182
Body
constituents: *see* specific constituent
fluid: *see* Fluid
neutron activation analysis, total, postmenopausal women, E82
total, rubidium-86, integral extraction ratio, H794
Bombesin
action, pancreatic acinar cells (amphibian), E112
gastrin release, in gastric fistula, E720
Bond graphs
cellular energy conversion, brown adipose tissue, R121
Bone
mineral content, postmenopausal women, E82
peak mass, postmenopausal women, E82
Bone marrow
cell membrane transport, cation changes during maturation, C251
Bowels: *see* Intestines
Bradycardia
reflex circulatory changes due to pericoronary stimulation, H759
vagal, cardioinhibitory neurons, R286
vagal, stimulation of external cuneate nucleus, R286
Brain
anteroventral third ventricle, electrical activation, H445
blood flow: *see* Blood flow
electrical stimulation of forebrain angiotensin and osmosensitive sites, hemodynamic effects, H445
extracellular space, nonelectrolyte permeability, H299
iodide efflux after injection into caudate nucleus, F331
serotonin, metabolic heat production in cold, R41
synaptosomal thyroid hormones, E638
thiocyanate efflux after injection into caudate nucleus, F331
ventricular perfusion, central chemical control of ventilation (turtle), R257
Brain stem
rostral, thermosensitivity (duck), R130
Breath analysis
and sterol balance, simultaneous, in cholesterol oxidation (primate), R55
$^{14}CO_2$ (primate), R55
Brody effect
vectorcardiographic potentials (pig), H182
Bromide space
extracellular water measurements, F254
Brown adipose tissue: *see* Brown fat
Brown fat
cellular energy conversion, R121
phosphoenolpyruvate carboxykinase activity, glucocorticoid regulation, E197
Brush border
folic acid transport, small intestine, E678
Buffers
oxygen, myocardial reactive hyperemia, H87
Bumetanide
anion transport, proximal tubule, F403
uncoupling of sodium bicarbonate from sodium phosphate transport, proximal tubule, F403
Bypass: *see* Shunts

Cadmium
hypertension, genetic influence, H385
Caerulein
action, pancreatic acinar cells (amphibian), E112
myoelectrical activity, small bowel, E249
satiety effects, R23
secretin and, interaction, pancreatic size and composition, E714
Calcium
absorption, parathyroid hormone-sensitive, distal nephron, F367
dietary, cellular and paracellular transport, ileum, E726
efflux, nephron, ionophore RO 2-2985 effect, F381
estrogen effects on renal vitamin D hydroxylases and serum 1α,25-dihydroxyvitamin D_3 (chick), E138
fluxes, atrial, A23187 effects, C13
fluxes, contractility and, atrial, C13
influx, venous smooth muscle reactivity, extracellular sodium effects, H581
ionized, plasma, in cardiac hemodilution, H767
isometric contractions, atrial, H295
lacrimal secretion and, C188
membrane stabilization, vascular smooth muscle, C227
permeability, myocardial cell, H461
plasma levels, paresis (cow), E634
pools, Tris effects, aorta and portal vein, H208
potassium efflux, sublingual gland, C128
potassium release, parotid gland, C180
prostaglandin E_2 synthesis, medullary, F213
renin release, control, kidney slices (pig), F22
secretagogue action, pancreatic acini, E517
sodium entry kinetics, skin (frog), C35
sodium transport, cholinergic inhibition, bladder (toad), F564
total body, postmenopausal women, E82
transport ATPase, cardiac sarcoplasmic reticulum, in hyperthyroidism, H745
ventricular fibrillation, H231
Calcium-45
efflux, pancreatic islets, glucose inhibition (*ob/ob* mouse), E191
Calcium-ATPase
kinetics, sarcoplasmic reticulum, in hyperthyroidism, H745
Calcium ionophore: *see* Ionophores
Calcium ions
length-tension curves, in volume overload heart failure, H690
permeability, sarcoplasmic reticulum, in hyperthyroidism, H745
Calcium-magnesium-ATPase
endotoxin-induced myocardial failure, H150
Calcium transport

cecal and colonic, in diabetes, E699
cellular and paracellular, ileum, E726
distal convoluted tubule, F492
distal nephron, F367
pancreatic acinar cells (amphibian), E112
Calf
blood flow, admittance plethysmography (human), H821
Caloric ingestion: *see* Feeding
Cannulation
intracaval, for hepatic venous blood samples, H262
Capacitance
abdominal vascular, reflex responses from aortic baroreceptors, H488
invaginated membrane (crayfish), C221
Capillaries
contracting muscle, H494
control site, heart, H321
density, heart, H321
fluid exchange, ileal, E429
fluid exchange, intestinal, adenosine effects, H707
intercapillary distances, heart, frequency analysis, H321
particles, mean flow, H251
peritubular, fluid uptake, F142
permeability: *see* Permeability
pulmonary, pressure: *see* Pressure
recruitment, heart, H321
transcapillary exchange, myocardial, dopamine analogue effects, H118
velocity: *see* Velocity
Capillary tube chamber
platelet chemotaxis, H23
Carbachol
intestinal nucleotide cyclases and, E539
oxyntic cell cyclic AMP and hydrochloric acid, gastric mucosa (bullfrog), E140
Carbamylcholine
insulin release, pancreatic islets, E493
sodium transport, bladder (toad), F586
Carbon dioxide
control, mathematical model, R265
humoral mechanism, R265
tension, urine-blood gradient, in respiratory alkalosis, F203
time-varying signal, model, R265
Carbon monoxide
cardiomegaly, regression, H516
Carbonic anhydrase
activity, urinary epithelia, hydrogen ion transport and, F77
cochlear potentials, generation, F317
Carboxyhemoglobin
carbon monoxide-induced cardiomegaly, H516
Carboxyinulin
biliary clearance rates, E570
Cardia: *see* Stomach
Cardiac arrest: *see* Heart
Cardiac membrane
physiology, quantitative ultrastructural analysis, C147
Cardiac nerves
afferent, hypertensive chemoreflex, H345
atrioventricular junctional rhythm, H308
efferent, hypertensive chemoreflex, H345
parasympathetic innervation, choline acetyltransferase activity, H367
recurrent, hypertensive chemoreflex, H345
reinnervation, norepinephrine uptake, H289
Cardiac output
angiotensin and α-adrenergic receptor blockade, F199
dye-dilution, without blood withdrawal, H258
exercised spontaneously hypertensive rat, H193
hypertonic sodium chloride infusion, H18
hypothermia, H136
isovolumic pressure fall, H701
volume load, maintained, H670
Cardioactive steroids
giant axon (squid), C55, C63
Cardiocardiac reflex: *see* Reflexes
Cardiogenic chemoreflex: *see* Reflexes
Cardiogenic shock
cysteine, H657
Cardio-Green
cardiac output without blood withdrawal, H258
Cardiomegaly
carbon monoxide-induced, regression, H516
Cardiopulmonary receptors: *see* Receptors
Cardiovascular reflexes: *see* Reflexes
Cardiovascular regulation
stimulation of external cuneate nucleus, R286
Cardiovascular responses
androgen-mediated sex differences, H242
angiotensin and α-adrenergic receptor blockade, F199
β-Carotene
absorption, intestinal, effects of bile, fatty acid, pH, and flow rate, E686
Carrier mechanism
folic acid, small intestine, E678
Castration
sex differences, cardiovascular responses, H242
Cathecholamine precursor
surgical stress, renal, F542
Catecholamines
balance, renal, surgical stress and, F542
cardiac output response to hypertonic sodium chloride infusion, H18
contraction, aorta and portal vein, H208
demethylation, erythrocytes, E150
plasma levels, during isotonic volume expansion, F119
release, surgical stress, renal, F542
renal handling, surgical stress and, F542
submandibular excretory ducts, F548
synthetic, oxygen consumption, myocardial, H237
uptake, myocardial, reinnervation and, H289
Cathepsin D
cardiogenic shock, H657
protein turnover, thyroxine effects, skeletal muscle, E231
Catheterization
pulmonary artery, H452
Catheters
distortion, oxygen uptake, myocardial reactive hyperemia, H87
Cations
divalent, screening of membrane surface charges, C109
erythrocytes, changes during maturation, C251
excretion, urinary, mineralocorticoids and, F576
homeostasis, cortical collecting tubules, F576
monovalent, active transport, in digitalis toxicity, H531
transport, acetylsalicylic acid effects, gastric mucosal cells, E16
transport, cortical collecting tubules, mineralocorticoids and, F576
Caudate nucleus: *see* Nucleus
Cecum
calcium transport, in diabetes, E699
Cell membranes: *see* Membranes
Cells: *see also* specific type or site
cultured, sodium-potassium pump and sodium-potassium-ATPase, disparity of temperature sensitivity (guinea pig, ground squirrel), C159
Central chemosensors: *see* Chemosensors
Central nervous system
thermosensitivity (duck), R130
Cerebral arteries
adrenergic vasoconstriction (goat), H131
neurogenic contraction (goat), H131
Cerebral blood flow: *see* Blood flow; Circulation
Cerebral tissue
regional hemodynamic changes, photoelectric method for measurement, H56
Cerebral vessels
sympathetic nerves, effects (dog, cat, monkey), H544
Cerebrospinal fluid: *see* Fluid
Cerebrovascular permeability: *see* Permeability
Cerebroventricles
electrical activation, H445
Chambers
capillary tube, platelet chemotaxis, H23
Chemical energetics: *see* Energetics
Chemical voltage clamp: *see* Voltage clamp
Chemiluminescence
phagocytizing alveolar macrophages, C193
Chemiosmotic hypothesis
biological systems, R99
Chemoreflexes: *see* Reflexes
Chemosensors
central respiratory (turtle), R257
Chemotaxis
platelets, human, collagen, H23
platelets, human, plasma factors, H23
Chloride
absorption, and base excretion, coupling, skin (frog), F33
absorption, forestomach (llama), E1
content, cellular, skeletal and heart muscle (amphibian), C122
delivery, distal, F219
excretion, urinary, regulation, F219
fluxes, insulin release and, pancreatic islets, E501
fluxes, transcellular and paracellular, proximal tubule (*Necturus*), F617
fluxes, transmural, gastric mucosa, E7
microcoulometric analysis, F192
neutral luminal entry, proximal tubule (*Necturus*), F617
permeability, proximal tubule (*Necturus*), F617
renin inhibition by sodium chloride, F444
transepithelial gradient and fractional delivery, thin loop of Henle, F192

Chloride (*continued*)
transport, isolated skin (frog), F33
transport, papillary collecting duct, F219
transport, skeletal and heart muscle (amphibian), C122
uptake, pancreatic islets, obese-hyperglycemic mice, E501
venous smooth muscle reactivity, extracellular sodium effects, H581
Chloride-base exchange
isolated skin (frog), F33
p-Chlorophenylalanine
serotonin, brain content, and cold-induced metabolism, R41
p-Chlorophenylalanine methyl ester
nycthemeral rhythm and ACTH, R210
Chlorothiazide
calcium transport, distal convoluted tubule, F492
sodium transport, distal convoluted tubule, F492
Cholecystokinin
action, pancreatic acinar cells (amphibian), E112
amylase release, pancreatic acini, E743
electrical and mechanical effects, antral smooth muscle, E324
octapeptide, intragastric pressure and, E552
satiety effects, R23
Choleresis
bile salt, permselectivity and, E570
Cholesterol
calcium-ATPase kinetics, sarcoplasmic reticulum, in hyperthyroidism, H745
oxidation, by simultaneous sterol balance and breath analysis (primate), R55
turnover (primate), R55
Cholesterol ester
chylomicron composition, duodenal, E183
Choline acetyltransferase
activity, cardiac, after transplantation, H367
Cholinergic agents
action, pancreatic acinar cells (amphibian), E112
amylase release, pancreatic acini, E743
ion transport, intestinal, E402
sodium transport, bladder (toad), F564
Cholinergic control
pancreatic polypeptide release, E443
Cholinergic effects
pancreatic islets, E493
Cholinergic mechanisms
lacrimal flow and potentials, C8
Cholinergic neurons
choline acetyltransferase activity, cardiac, H367
Cholinergic receptors: *see* Receptors
Cholinergic responses
lacrimal gland, C8
Cholinergic vasodilation
hindlimb muscles, H482
Cholinomimetics
salivary secretion (tick), R76
Chorionic gonadotropin, human: *see* Gonadotropin
Chromaffin vesicle
biosynthesis (bovine), E475
Chromatin
template activity, postnatal, myocardial, H338
Chromatography, gas
erucic acid metabolism, E509
mass spectrometry and, prostaglandin synthesis, renal, F180
Chromogranins
synthesis, perfused adrenal glands (bovine), E475
Chylomicrons
erucic acid metabolism, E509
lipid composition, lymph E183
secretion, duodenal, E183
Chyme
constituents producing intestinal hyperemia, H677
Cimetidine
esophageal sphincter, lower, responses (baboon), E42
Circadian rhythm: *see* Rhythm
Circulation: *see also* Blood flow; Cross-circulation; Microcirculation
cerebral, adrenergic vasoconstriction (goat), H131
collateral, awake pigs, H435
coronary, capillary control, H321
coronary collateral, after myocardial infarction (baboon), H413
coronary, force, transient, papillary muscle, H267
platelet removal, hepatic and splenic, H314
portal, potassium reabsorption and secretion (bullfrog), F26
redistribution, acute hypometabolic behavior, R89
Circulatory reflex: *see* Reflexes
Circus movement
heart, H1
reentrant excitation, cardiac, H1
Cirrhosis
ascites mobilization following furosemide or mannitol diuresis, F12
Citrate synthase
neonatal skeletal muscle, thyroid deficiency and, C97
Clamping
renal artery, two-component natriuretic response to saline loading, F126
Clearance studies: *see* specific subject and site
Clotting factors
plasma, deficiency, platelet chemotaxis and, H23
plasma, factors VIII, IX, XI, and XII, platelet chemotaxis and, H23
Coagulation
procoagulant activity, leukocytes, peritoneal, H333
Cochlear potentials
carbonic anhydrase and, F317
Colchicine
creatine and muscle mass, relation, C199
Cold stress
metabolic heat production, brain serotonin and, R41
Collagen
chemotaxis, human platelet, H23
Collagenase
renal tubule cell volume, F480
Collecting ducts: *see* Kidney tubules, collecting
Colloid osmotic pressure: *see* Pressure
Colon
calcium transport, in diabetes, E699
deoxyribonucleic acid synthesis, E565
development, E207, E213
galactosyltransferase, fetal, neonatal, and adult, differentiation, E213
glycoprotein synthesis, E207, E213
Compartmental analysis: *see* Models, and the specific subject and site
Complexity
and limits to knowledge, R201
Compliance, heart muscle: *see* Muscle, heart
Computer studies: *see* Models, and the specific subject and site
Computerized servosystem: *see* Servosystem
Concentrating mechanisms
urinary, F1
Concentration gradient
transepithelial, kidney, F1
Conductance
total tissue, gastric mucosa, E7
Conduction
antiarrhythmic drug effects, H574
ischemic heart, H574
Connective tissue
content, arterial wall mechanics and, hindlimb, H649
Constant-infusion isotope dilution method
glucose-lactate interrelations (sheep), E487
Constriction
arterial smooth muscle responses, hindlimb, H649
pulmonary artery, right ventricular systolic hypertension (pony), H628
Contractility, contraction: *see* Muscle
Contracture
heart muscle: *see* Muscle, heart
Control theory
biology and, R205
nucleic acid-protein relationship, R205
optimization, R205
self-organization, R205
Convection
osmosis and, R3
Converting enzyme inhibitor
SQ 20,881, vasopressor response (eel), H95
Cooling
blood flow, cutaneous (alligator), R160
surface, ischemic myocardium, H736
Corn oil
erucic acid metabolism and, E509
Coronary artery
arteriography: *see* Arteriography
isolated, mannitol, hypertonic, vasoconstrictor and vasodilator effects, H728
ligation, cellular electrophysiological marker, ischemic myocardial injury, H559
ligation, chronically sympathectomized ventricle, H429
occlusion, ischemic myocardium, during hypothermia, H736
occlusion, left ventricular function and collateral circulation (baboon), H413
perfused, prostaglandin actions, H400
stenosis, arteriography and hydraulic analysis in unsedated dog, H350
Coronary blood flow: *see* Blood flow; Circulation
Coronary vascular response
indomethacin, H372
myocardial oxygen consumption, H372
Corticoresistance
glucocorticoid receptors, R115

Corticosteroid-binding globulin
plasma concentrations during development, E451
Corticosterone
episodic secretion, R250
nycthemeral rhythm and ACTH, R210
plasma, circadian rhythms under constant light, R243
plasma, endogenous ultradian rhythm in exposure to prolonged continuous light, R250
total and free, plasma concentrations during development, E451
Countercurrent multiplication system
renal concentrating and diluting processes, F1
Countercurrent system
renal, F387
Countershock
myocardial cell response (chick embryo), H214
Coupling
chloride absorption-base excretion, isolated skin (frog), F33
energy, to sodium transport, skeletal muscle (frog), C25
excitation-contraction: *see* Excitation-contraction
insulin-receptor-glucose transport system, adipocytes, in streptozotocin diabetes, E175
solute, fluid transport, ileal, E429
stimulus-secretion, lacrimal gland, C188
stimulus-secretion, renin release, kidney slices (pig), F22
Creatine
intracellular, muscle mass and, C199
Creatine kinase
plasma clearance, thyroid function and, E614
Creatine phosphate
levels, myocardial ischemia, Tris effects, H167
Creatine phosphokinase
plasma, cardiogenic shock, H657
Cross-circulation studies
natriuretic factors with reduced nephron mass, F465
Crystalloid hemodilution: *see* Hemodilution
Cuneate nucleus: *see* Nucleus
Currents
electric, sodium pump-generated, giant axon (squid), C63
transcellular, ion selectivity, proximal, F234
Currents, short-circuit
aldosterone receptors, bladder (toad), C90
sodium transport, bladder (toad), C90
urinary bladder epithelium (toad), C82
Cyanide
energy production, skeletal muscle (frog), C25
giant axon (squid), C55
Cyclic AMP: *see* Adenosine monophosphate, cyclic
Cyclic GMP: *see* Guanosine monophosphate, cyclic; Guanosine 5′-phosphoric acid, cyclic
Cyclic nucleotides: *see* Nucleotides
Cyclooxygenase
prostaglandin-forming, immunohistochemical localization, renal cortex, F451
Cyproheptadine
cardiogenic hypertensive chemoreflex, neural pathways, H345
Cysteine
cardiogenic shock, H657
infusions, urinary zinc excretion, F40
Cytochrome *c*
neonatal skeletal muscle, thyroid deficiency and, C97
oxidation-reduction turnover number, C213
Cytoplasmic receptors: *see* Receptors
Cytoprotection
prednisolone-induced intestinal lesions, E703
Cytosolic adenine nucleotides: *see* Adenine nucleotides

D600

cardiac response, species differences, H276
Data analysis: *see* Models, and the specific subject
Death, sudden
ventricular defibrillation threshold, temporal stability, H553
Defibrillation
electric countershock, myocardial cells (chick embryo), H214
threshold, ventricular, temporal stability, H553
Dehydration
body fluid distribution, R237
Dehydroepiandrosterone
clearance, females (baboon), E74
dynamics, females (baboon), E74
estradiol and, in pregnancy (baboon), E78
production, females (baboon), E74
secretion rate, females (baboon), E74
transfer constant, females (baboon), E74
Dehydroepiandrosterone sulfate
clearance and production, females (baboon), E74
estradiol and, in pregnancy (baboon), E78
Demethylation
erythrocytes, hemoglobin and, E150
Dendrites
compartmental models, R93
Denervation: *see* specific nerve and site
Deoxycorticosterone acetate
cation transport, cortical collecting tubules, F576
hypertension: *see* Hypertension
renin secretion and distal tubule sodium ions, F611
2-Deoxyglucose
gastrin release, in gastric fistula, E720
uptake, adipocytes, in streptozotocin diabetes, E175
2-Deoxy-D-glucose
and dorsomedial hypothalamic lesions, feeding responses, R168
Deoxyribonucleic acid
caerulein-secretin interaction, trophic effects, pancreatic, E714
ribonucleic acid and, hybridization, dose-response curves, E97
synthesis, gastric mucosa, after vagotomy and atropine, E565
synthesis, gastrin effects, mucosal, E32, E565
Dephosphorylation
pyridoxine hydrochloride, absorbed, jejunal, E272
Depolarization
α-dihydrograyanotoxin II-induced (crayfish, salamander, frog), C204
grayanotoxin I, sinoatrial node and right atrial myocardia, C136
slow diastolic, sinus node pacemaker cells, H379
Dermal permeability: *see* Permeability, skin
Development: *see* Growth; Embryology; Fetus; Newborn
Dexamethasone
cation transport, cortical collecting tubules, F576
nycthemeral rhythm and ACTH, R210
phosphoenolpyruvate carboxykinase activity, brown adipose tissue, E197
Dextran
radioactive microsphere suspending agent, hypotensive effect, H587
Diabetes
calcium-45 efflux, pancreatic islets (*ob/ob* mouse), E191
ketone body turnover, hepatic, E238
ketones, net production, hepatic, E238
Diabetes insipidus
prostaglandin excretion, renal, E624
prostaglandin synthesis, renal, F180
Diabetes, streptozotocin
calcium transport, cecal and colonic, E699
diglycine absorption, E457
glucose metabolism, adipocytes, E175
insulin binding, adipocytes, E175
Diaphragm
amino acid transport, insulin resistance, newborn, E304
pH transients, intracellular, measurement, C49
Diastolic relaxation, heart: *see* Muscle, heart
Diastolic wall stress: *see* Wall stress
Dibutyryl cAMP: *see* Adenosine monophosphate, cyclic
Diet: *see* Feeding, and the specific dietary constituent
Diffusion
intercapillary, cardiac, H321
nonelectrolytes, cerebrovascular, H299
osmosis and, R3
Diffusive flux
ion selectivity, proximal tubule, F234
Digitalis toxicity
C-1 spinal cord transection, protective effect, H531
neural factors, H531
Diglycine
absorption, in streptozotocin diabetes, E457
α-Dihydrograyanotoxin II
membrane sensitivity (crayfish, frog, salamander), C204
5,6-Dihydroxy-2-methylaminotetralin
blood flow, myocardial ischemia, H118
5,7-Dihydroxytryptamine
serotonin, brain content, and cold-induced metabolism, R41
1,25-Dihydroxyvitamin D
plasma levels, parturient paresis (cow), E634
1α,25-Dihydroxyvitamin D_3
estrogen effects (chick), E338

5,5-Dimethyl-2,4-oxazolidinedione
pH transients, intracellular, diaphragm, C49
16,16-Dimethyl prostaglandin E_2
interaction with adenylate cyclase-cyclic AMP system, gastric mucosa, E546
prednisolone-induced intestinal lesions, prevention, E703
2,4-Dinitrophenol
cation transport, gastric mucosal cells, E16
insulin binding to soleus muscle, E606
Diuresis
catecholamine plasma levels, F119
exaggerated, in spontaneous hypertension, F409
furosemide, ascites mobilization, F12
mannitol, ascites mobilization, F12
water, renal papillary epithelium, F69
Diuretics
acute renal failure, norepinephrine-induced, F131
ascites mobilization in cirrhosis, F12
plasma anion gap changes during chronic metabolic acid-base disturbances, F291
uncoupling of proximal sodium bicarbonate from sodium phosphate transport, F403
volume expansion and, interaction, F528
Divalent cations: *see* Cations
DMO: *see* 5,5-Dimethyl-2,4-oxazolidinedione
DNA: *see* Deoxyribonucleic acid
Dobutamine
cardiac function, coronary flow, and oxygen extraction, interdependence, H784
oxygen consumption, myocardial, H237
Dopa
demethylation, erythrocytes, E150
Dopamine
oxygen consumption, myocardial, H237
plasma levels, isotonic volume expansion and, F119
salivary secretion (tick), R76
surgical stress, renal F542
Dopamine analogue
blood flow, myocardial ischemia, H118
Dopamine β-hydroxylase
angiotensin II effects, cardiac, H281
synthesis, perfused adrenal glands (bovine), E475
Dorsomedial hypothalamic lesions: *see* Hypothalamic lesions
Dose-dependence
insulin, plasma disappearance, E577
Dose-response curves
bioassay, E97
curve fitting, E97
DNA-RNA hybridization, E97
radioligand assay, E97
sigmoidal, simultaneous analysis, E97
Drinking
behavior, angiotensin II, intraventricular, H392
conflicting circadian synchronizers (monkey), R175
rate (teleost), R48
Duodenal acid
fluxes, hydrogen ions and, E692
Duodenum
antiperistalsis (chicken), E670
chylomicron composition during triglyceride and lecithin infusion, E183
hydrogen ion removal, different mechansims, E692
motility: *see* Motility
Dye-dilution
cardiac output without blood withdrawal, H258

Echocardiography
ventricular fibrillation, left and right dimensions, H231
Ectotherm
ventilation, central chemical control (turtle), R257
Efferent fibers
vagal, discharge, gastric antrum, E366
Efferent nerves
cardiac: *see* Cardiac nerves
renal excretion during volume load, H670
EGTA
calcium-45 efflux, pancreatic islets (*ob/ob* mouse), E191
Elastic stiffness
aortic pressure-dimension techniques (dog, sheep), H610
Elasticity
erythrocyte membrane, pH effects, C269
smooth muscle: *see* Muscle, smooth
Elastomers
silicone, potassion ion loss, renal tissue, F228
Electrical activity: *see* specific subject and site
Electrical admittance plethysmography: *see* Plethysmography
Electrical current: *see* Currents
Electrical field stimulation
countershock type, cultured myocardial cells (chick embryo), H214
cyclic AMP concentration, atrial, H281
dopamine β-hydroxylase release, cardiac, H281
Electrical stimulation
cardiac response, species differences, H276
forebrain angiotensin and osmosensitive sites, H445
Electrocardioversion
myocardial cells (chick embryo), H214
Electrochemical gradient
hydrogen ion transport, urinary epithelia, F77
Electrodes
flexible valinomycin, potassium ion-selective, H455
Electrogenic sodium pump: *see* Pump
Electrolytes
perfusion, lacrimal flow and potentials, C8
plasma, chronic metabolic acid-base disturbances, F291
plasma, Nernst potentials, placenta, H200
plasma, transplacental gradients, H200
secretion, angiotension II hypertension, F174
transport, biliary, E158
transport, intestinal, cholinergic-adrenergic interactions, E402
transport, submandibular excretory ducts, adrenergic agonists, F548
Electromechanical uncoupling
myocardial, H46
Electromyography
efferent vagal fibers, discharge, gastric antrum, E366
Electron microscopy: *see* Microscopy
Electron probe microanalysis
cation changes during maturation, red blood cells, C251
red blood cells, C245, C251
Electrophysiological markers
cellular, in ischemic myocardial injury, H559
Electrophysiological techniques: *see also* specific subject, site, and procedure
sodium-to-chloride permeability, proximal convoluted tubule, F592
Electrophysiology: *see* specific subject and site
Electrotonic effects
sinus node pacemaker cells, H379
Electrotonus
neurons, compartmental models, R93
Eledoisin
pancreatic acinar cells (amphibian), E112
Embryo
myocardial cells, cultured, electric countershock (chick), H214
Embryology
colon, E207
End-diastolic volume: *see* Volume
Endoperoxide analogues: *see* Prostaglandin analogues
Endoperoxides
coronary responses, H400
Endothelium
arterial, prostaglandin-forming cyclooxygenase, renal cortex, F451
Endotoxin
fibrinogen response, H223
myocardial failure, role of myofibril and venous return, H150
End-plate potentials: *see* Potentials
Energetic state
anoxic myocardium, H537
Energetics
chemical, single isometric tetani, smooth muscle, C1
skeletal muscle (frog), C20
Energy
cellular, conversion in brown adipose tissue, R121
coupling, to sodium transport, skeletal muscle (frog), C25
metabolic, absence of, *p*-aminohippurate transport, kidney, F278
metabolism, heart function and, H784
output, force generation during muscle contraction (frog), C20
transduction, in biological systems, R99
turnover, skeletal muscle (frog), C25
utilization, single isometric tetani, smooth muscle, C1
P-Enolpyruvate carboxykinase
distribution, nephron, in acidosis and starvation, F246
Entrainment
conflicting circadian synchronizers (monkey), R175
Environment
conflicting temporal information, circadian rhythm dissociation

(monkey), R175
Enzymes: *see also* specific enzymes
gluconeogenic, distribution, nephron, in acidosis and starvation, F246
nephron, F387
proteolytic, modification of slow sodium inactivation, axons (crayfish), C238
skeletal muscle, neonatal, C97
skeletal muscle, thyroid deficiency effects, neonatal, C97
urea cycle, zinc deficiency, E203
Epinephrine
glucagon and, sequential infusion, effect on glucose turnover, E287
gluconeogenesis, hepatic, E354
nucleotide cyclases, intestinal epithelium, subcellular distribution, E539
oxygen consumption, myocardial, H237
renin release, kidney slices (pig), F22
Epithelial membranes
voltage clamp, automatic, C69
Epithelium: *see also* specific site
sodium entry kinetics (frog), C35
Erucic acid
ingested, metabolism, E509
Erythrocytes
capillary distribution, effect of velocity, H251
cation changes during maturation, C251
demethylation, hemoglobin and, E150
electron probe microanalysis (human, sheep), C245, C251
membrane elasticity, pH effects, C269
sodium-potassium pump and sodium-potassium-ATPase, disparity of temperature sensitivity (guinea pig, ground squirrel), C159
Erythropoiesis
maturation of membrane transport, C251
Escherichia coli
toxigenic, myoelectrical response, small intestine, E311
Eserine
insulin release, pancreatic islets, E493
Esophageal contractions
off-response (opossum), E392
on-response (opossum), E392
vagal stimulation, E63, E392
Esophageal sphincter, lower
angiotensin receptor (opossum), E738
histaminergic pharmacology (baboon), E42
Esophagus
angiotensin receptor (opossum), E738
peristalsis, vagal stimulation-induced (opossum), E392
potassium content, smooth muscle, regional differences (opossum), E709
vagal stimulation, E63, E392
Estradiol
dehydroepiandrosterone and its sulfate, in pregnancy (baboon), E78
metabolic clearance rate, pregnancy (baboon), E78
production, pregnancy (baboon), E78
secretion, pregnancy (baboon), E78
sex differences, cardiovascular responses, H242
transfer constant, pregnancy (baboon), E78
Estrogen
1α,25-dihydroxyvitamin D_3, serum (chick), E338
osteoporosis, postmenopausal, E338
vitamin D hydroxylases, renal (chick), E338
Estrogen precursors
pregnancy (baboon), E78
Ethanol
ion transport, gastric mucosa, parallel pathways, E7
Euthyroidism
oxidative phosphorylation, heart, C213
Evaporative heat loss: *see* Heat loss
Evoked potentials: *see* Potentials
Excitability
ischemic heart, antiarrhythmic drug effects, 574
Excitation
reentrant, cardiac arrhythmias, H1
Excitation-contraction coupling
endotoxin-induced myocardial failure, H150
myocardial cell, H461
Tris effects, vascular smooth muscle, H208
Excretion: *see* specific subject and site
Exercise
arterial pressure-dimension relations, measurement (dog, sheep), H610
endogenous ultradian rhythms under prolonged continuous light, R250
free-running rhythm, R243, R250
glucose metabolism, splanchnic, E255
glycogen metabolism, muscle, E255
glycogen resynthesis, muscle, R145
internal synchronization among circadian rhythms under constant light, R243
spontaneous hypertension, ventricular morphology and pumping ability, H193
stress, coronary blood flow characteristics and transmural distribution (miniature pig), H601
swimming, ventricular morphology and pumping ability, in spontaneous hypertension, H193
Exocrine pancreas: *see* Pancreas
Exocrine secretion
vasoactive intestinal polypeptide effects (pig), E387
Extracellular fluid volume: *see* Volume
Extracellular space
measurements, esophagus (opossum), E709
Extrasystole
return, reentry and, H1

Factorial design
atrioventricular junctional rhythm, H308
Factors, clotting: *see* Clotting factors
Fasting
bicarbonate incorporation into blood glucose, insulin effects, E22
gluconeogenic enzymes, distribution, nephron, F246
glucose and glycogen metabolism, postexercise, E255
ketone body turnover, hepatic, E238
ketone utilization, fetal, E330
ketones, net production, hepatic, E238
lactate metabolism, lung, E619
pregnancy, fetal and newborn insulin secretory response (sheep), E467
protein synthesis, skeletal muscle and heart, E126
pyruvate incorporation into blood glucose, insulin effects, E22
Fat
brown: *see* Brown fat
dietary, lingual lipase activity and, E416
Fat cells
diet-induced increase, E279
glucose metabolism, streptozotocin diabetes, E175
glucose transport, hyperinsulinemia, E53
insulin binding, hyperinsulinemia, E53
insulin binding, streptozotocin diabetes, E175
insulin sensitivity, E53
metabolism, hyperinsulinemia, E53
Fatty acids
calcium-ATPase kinetics, sarcoplasmic reticulum, in hyperthyroidism, H745
β-carotene absorption, intestinal, E686
composition, erucic acid and, E509
fibrinogen response, H223
free, ketone body turnover and net ketone production, hepatic, E238
free, metabolism, erucic acid and, E509
hepatocytes, fetal, E330
intestinal hyperemia and, H677
long-chain, fibrinogen response, H223
metabolism, erucic acid metabolism and, E509
specificity, erucic acid metabolism and, E509
volatile, absorption, forestomach (llama), E1
Feedback
bile acids (primate), R55
macula densa, perfusate osmolality, F352
macula densa, plasma expansion, F156
negative, arterial pressure after hemorrhage, R279
positive, control theory, R205
stop-flow pressure responses, perfusate osmolality and, F352
tubuloglomerular, perfusate osmolality and, F352
tubuloglomerular, plasma volume expansion, F156
Feeding: *see also* specific dietary constituent
adipocyte increase, diet-induced, E279
bicarbonate incorporation into blood glucose, insulin effects, E22
blood glucose level, prandial, E103
caloric ingestion, regulation (rhesus monkey), R29
conflicting circadian synchronizers (monkey), R175
deoxyribonucleic synthesis and, fundic mucosa, E32
dorsomedial hypothalamic lesions and, R168
food intake, appetite and, newborn, R141
insulin release, prandial, two stages, E103
metabolic correlates, E119
migrating complex, postprandial disruption, E666
pancreatic polypeptide response to meal, E443
pyruvate incorporation into blood

Feeding (*continued*)
glucose, insulin effects, E22
satiety, cholecystokinin and caerulein effects, R23
taste aversion, R23
test meals, disruption of interdigestive motor complex, E661
test meals, migrating complex, E666
Feeding behavior
sucrase, jejunal, circadian rhythm, E437
Feeding patterns
transplanted β-cells, E119
vagotomy, truncular, E119
Feeding tube
velocity and hematocrit distribution, capillaries, H251
Femoral to femoral fistula: *see* Fistula
Ferrocyanide-sucrose
biliary clearance rates, E570
Ferrokinetics
transferrin saturation, R18
α-Fetoprotein
fetal-maternal distribution (ovine), E27
Fetus: *see also* Placenta; Pregnancy
blood flow, cerebral, regulation (ovine), H162
α-fetoprotein, fetal-maternal distribution (ovine), E27
fuels, ketone utilization, hepatocytes, E330
galactosyltransferase, colonic, E213
gluconeogenesis from alanine (ovine), E448
glycoprotein synthesis, colon, E207
insulin secretion (sheep), E467
ketone utilization, hepatocytes, E330
proteins, serum (ovine), E27
sodium fluxes, bidirectional (sheep), F536
water exchange, mathematical model, R181
Fibers: *see* Muscle fibers
Fibrillation
atrial, parasympathetic influence (puppy), H683
atrial, reentrant excitation, H1
ventricular, dimensions, left and right, H231
ventricular, hemodynamics, H231
Fibrinogen
^{131}I-labeled, metabolism, H223
Fibrinogen levels
fatty acid effects, H223
indomethacin effects, H223
prostaglandin E_2 and analogues, effects, H223
Fick equation
oxygen uptake, myocardial reactive hyperemia, H87
Fick method
and microsphere methods, combined, for regional blood flow measurement, H357
Field stimulation: *see* Electrical field stimulation
Filtration: *see also* Ultrafiltration
water, gastric mucosa (frog), E361
Filtration coefficient
network thermodynamic model, proximal tubule, F638
Filtration, glomerular
angiotensin II, exogenous and endogenous, F605
angiotensin II hypertension, F174
hemorrhage, F46
maintained volume load, H670
mesotocin effects (bullfrog), F151
perfusate osmolality, F352
plasma volume expansion, F156
potassium ion loss, renal tissue, F228
potassium, nephron segments, F515
saline loading, developing kidney, F417
stop-flow pressure feedback, F352
sympathetic nerve activity, F557
Fistula
arterial-venous, femoral to femoral, in endotoxin-induced myocardial failure, H150
arteriovenous, hemorrhage heart rate with volume overload, H422
gastric, gastrin release, cholinergic stimulation and suppression, E720
Flavoprotein
oxidized, normoxic and hypoxic states, H809
Flow: *see also* Blood flow; Lymph flow
isosmotic, proximal tubule, network thermodynamic model, F638
lacrimal, electrolyte solutions and, C8
urine, renal sympathetic nerve activity, F557
Flow fields
osmosis, R3
Flow rate
perfusate, β-carotene intestinal absorption, E686
Flow resistance: *see* Resistance
Flowmetry
noninvasive, admittance plethysmography, limb (human), H821
Fluid
absorption across membranes, F626
amniotic, α-fetoprotein (ovine), E27
body, angiotensin II hypertension, F174
body, control during maintained volume load, H670
body, distribution after acclimation to water restriction, R237
capillary exchange, ileal, E429
capillary exchange, intestinal, adenosine effects, H707
capillary uptake, peritubular, F142
cerebrospinal, central respiratory chemosensors (turtle), R257
cerebrospinal, iodide and thiocyanate efflux from brain after injection into caudate nucleus, F331
collecting ducts, delivery, F515
compartmentation, acclimation to water restriction, R237
gut, osmoregulation (teleost), R48
interstitial, renal concentrating and diluting processes, F1
mechanics, osmosis, R3
renal tubular, transport, F626
salivary: *see* Salivary secretion
solute-coupled transport, ileal, E429
transepithelial transport, model, F626
volume: *see* Volume
Fluorescence
NADH, myocardial performance, normoxia and hypoxia, H144
Fluorometry
flying-spot, oxygen delivery, normoxic and hypoxic states, H809
Flutter, atrial
reentrant excitation, H1
Flying-spot fluorometer: *see* Fluorometry
Folic acid
influx, small intestine, E678
transport, small intestine, E678
Follicle-stimulating hormone
gonadotropin release, E586
Forestomach: *see* Stomach
Food intake: *see* Feeding, and the specific dietary substance
Force
transient, load changes, papillary muscle, H267
wall: *see* Wall force
Force transducers: *see* Transducers
Forearm
blood flow, admittance plethysmography (human), H821
blood flow, baroreceptors, in renin control, H29
Forebrain: *see* Brain
Freeze-fracture
antidiuretic hormone-induced intramembranous alterations in collecting ducts, F440
Fructose-1,6-biphosphatase
distribution, nephron, in acidosis and starvation, F246
Fructosediphosphatase
gluconeogenesis, hormonal regulation, E295
Fructose-6-phosphate substrate
cycling, hormonal regulation of gluconeogenesis, E295
Fuels
fetal, ketone utilization, hepatocytes, E330
renal, F137
Fundic mucosa
cell proliferation, E32
deoxyribonucleic acid synthesis, E32
gastrin, E32
vagal denervation, E32
Fundic vagotomy
gastrin release, E720
Furosemide
acute renal failure, norepinephrine-induced, F131
calcium transport, distal nephron, F367
chloride transport, papillary collecting duct, F219
diuresis, ascites mobilization, F12
renin secretion and distal tubule sodium ions, F611
volume expansion, compensatory adaptation, F528

Gain

open-loop, arterial pressure after hemorrhage, R279
terminology, critique, H117
Galactosyltransferase
fetal, neonatal, and adult colon, differentiation, E213
Gap junctions
myometrial activation during parturition, C168
Gas chromatography: *see* Chromatography
Gastric: *see also* Stomach
Gastric acid
fluxes, hydrogen ions and, E692
secretion, cholinergic stimulation and suppression, E720
secretion, in gastric fistula, E720

Gastric antrum: *see* Antrum
Gastric balloon
pressure, intestinal motility monitoring, E532
Gastric emptying
intragastric pressure effects, E552
Gastric fistula: *see* Fistula
Gastric motility: *see* Motility
Gastric mucosa: *see also* Fundic mucosa
applied pressures and net water flux (frog), E361
barrier, hydrogen ion removal, E692
cellular cation transport, acetylsalicylic acid effects, E16
conductance, total tissue, E7
deoxyribonucleic acid synthesis, gastrin and, E565
ion transport, ethanol effects, E7
ion transport, parallel pathways, E7
noncellular leak path, E7
oxyntic cell cyclic AMP formation and hydrochloric acid secretion, dissociation (bullfrog), E140
prostaglandins, interaction with adenylate cyclase-cyclic AMP system, E546
Gastric secretion
applied pressures and net water flux (frog), E361
intragastric pressure effects, E552
Gastric tissue
hormonal influences, E422
Gastrin
deoxyribonucleic acid synthesis after vagotomy and atropine, E565
deoxyribonucleic acid synthesis, fundic mucosa, E32
intragastric pressure and, E552
migrating complex, postprandial disruption, E666
myoelectrical activity, small bowel, E249
release, antral, inhibitor, E410
release, antral, organ culture study, E410
release, gastric fistula, cholinergic stimulation and suppression, E720
Gastroduodenal junction
smooth muscle response to bethanechol and progesterone, E422
Gastrointestinal tract
blood flow distribution, wall, H34
distention, motility and blood flow, H34
gastrin release, in antral organ culture, E410
manipulation, motility and blood flow, H34
motility: *see also* Motility
motility, wall, H34
mucosa-submucosa, motility and blood flow, H34
muscularis serosa, motility and blood flow, H34
Giant axon: *see* Axon
Glass microelectrode technique: *see* Microelectrodes
Globulins
corticosteroid-binding, plasma concentrations during development, E451
Glomerulotubular balance
mechanisms, proximal tubular reabsorption determinants, F142
saline loading, developing kidney, F417
Glomerulus: *see also* Blood flow; Feedback; Filtration; Pressure; Receptors
adenylate cyclase, prostaglandin-stimulated, F458
Glucagon
epinephrine and, sequential infusion, effect on glucose turnover, E287
extraction, hepatic, augmented secretion, E88
glycogen resynthesis, muscle, after exercise, R145
hormonal regulation, E295
length-tension curves, in volume overload heart failure, H690
metabolism, postexercise, E255
secretion, effects of secretin (pig), E381
secretion, vasoactive intestinal polypeptide and (pig), E387
substrate cycling, E295
Glucocorticoids
peptide-chain initiation, skeletal muscle and heart, E134
phosphoenolpyruvate carboxykinase activity, regulation, brown fat, E197
receptors: *see* Receptors
tryptophan-oxygenase induction, liver, E374
tyrosine aminotransferase induction, liver, E374
Gluconeogenesis
alanine in vivo (ovine fetus and lamb), E448
ammonia metabolism, F265
^{14}C-labeled aspartate, insulin effects, E22
^{14}C-labeled bicarbonate, insulin effects, E22
^{14}C-labeled pyruvates, insulin effects, E22
fructose-6-phosphate substrate cycling, E295
futile cycles, E295
glucose-lactate interrelations (sheep), E487
hepatic, glucose load and, E354
hormonal regulation, E22, E295
intermediates, hepatic profiles, E354
renal, high protein diet and, E261
Gluconeogenic enzymes
distribution, nephron, in acidosis and starvation, F246
Glucoprivation
and dorsomedial hypothalamic lesions, feeding responses, R168
Glucose
arterial plasma concentration (sheep), E487
bicarbonate incorporation, insulin effects, E22
blood level, prandial, E103
dorsomedial hypothalamic lesions and, feeding responses, R168
hepatic balance, H262
inhibition, calcium-45 efflux, pancreatic islets (*ob*/*ob* mouse), E191
intestinal hyperemia and, H677
lactate and, interrelations (sheep), E487
load, hepatic gluconeogenesis, E354
maternal infusion, insulin secretory responses, fetal and newborn (sheep), E467
maximal tubular reabsorption, developing kidney, F417
metabolic and functional effects, perfused kidney, F52
metabolism, adipocytes, streptozotocin diabetes, E175
metabolism, septic shock, R219
metabolism, splanchnic, postexercise, E255
output, hepatic, E88
oxidation, adipocytes, streptozotocin diabetes, E175
oxidation, cardiac myocytes, amino acid stimulation, E461
oxidation, renal, F52
phosphate reabsorption, inhibition, kidney, F430
plasma, transplacental gradients, H200
pyruvate incorporation, insulin effects, E22
receptors: *see* Receptors
reversal of valinomycin blockade of myocardial slow channels, H46
splay, developing kidney, F417
transport, adipocytes, in hyperinsulinemia, E53
tritiated, hormonal regulation of gluconeogenesis, E295
tritiated, substrate cycling, E295
turnover, glucagon and epinephrine infusion, E287
utilization, renal, F52
D-Glucose
chloride uptake, pancreatic islets, E501
Glucose-6-phosphatase
distribution, nephron, in acidosis and starvation, F246
Glutaminase
glutamine metabolism, renal, E261
Glutamine
metabolism, renal, high protein diet, E261
Glycerol
nonelectrolyte permeability, cerebrovascular, H299
Glycine
infusions, urinary zinc excretion, F40
^{15}N-labeled, protein turnover, measurement, E165
Glycogen
formation, liver, E354
metabolism, muscle, postexercise, E255
resynthesis, muscular, after exercise, R145
Glycogen synthase
activity, skeletal muscle, after exercise, R145
Glycogen synthetase
liver, E354
Glycolysis
cardiac ischemia and reperfusion, H637
lung, perfused, E619
Glycoprotein
synthesis, developing colon, E213
Gonadotropin
human chorionic, action, Leydig and granulosa cells, E218
pituitary, release, stimulated by luteinizing hormone-releasing hormone, E586
pregnant mares serum, action, Leydig and granulosa cells, E218
Gonadotropin-releasing hormone
^{125}I-labeled, membrane binding, nonpituitary tissues, E227
mechanism of action, pituitary, E37
pituitary response to cyclic AMP, sex difference, E37

Gradient-coupled transport
intestinal, C73
Granulocytes
procoagulant activity, peritoneal, H333
Granulosa cells
human chorionic gonadotropin, action, E218
pregnant mares serum gonadotropin, action, E218
Gravimetric technique
pulmonary capillary pressure, intact lung, H569
Grayanatoxin I
depolarization, sinoatrial node and right atrial myocardia, C136
Growth
intestinal, streptozotocin diabetes, E457
Growth hormone
amino acid transport, E316
protein turnover, skeletal muscle, E231
Guanethidine
salivary secretion (tick), R76
Guanidine derivatives
metabolism, isolated perfused kidney, F376
Guanosine monophosphate, cyclic
acetylcholine-stimulated pancreatic islets, E493
8-bromo-, submandibular secretions, C256
gonadotropin release stimulated by luteinizing hormone-releasing hormone, E586
ion transport, intestinal, E402
sodium transport, bladder (toad), F564, F586
sodium transport, cholinergic inhibition, bladder (toad), F564
Guanosine 5′-phosphoric acid, cyclic
peptide action, pancreatic acinar cells (amphibian), E112
Guanosine triphosphate
prostaglandin-stimulated adenylate cyclase, glomeruli, F458
Gut: *see* Intestines

H_1, H_2: *see also* Histamine
agonists, renal, F570
antagonists, renal, F570
receptors: *see* Receptors
receptor blockade, esophageal sphincter, lower (baboon), E42
Haloperidol
catecholamine plasma levels, F119
isotonic volume expansion, F119
Hanssen's technique
glomerular and nutrient blood flow measurement, H592
Heart
arrest, myocardial contracture, H619
arrhythmias: *see* Arrhythmias
bypass: *see* Shunts
capillaries: *see* Capillaries
choline acetyltransferase activity after transplantation, H367
dimensions, diastolic ventricular wall stress and, H247
electrophysiology, H1
erucic acid metabolism, E509
hemodilution, H767
hypertrophy: *see* Hypertrophy
hypoxic: *see* Hypoxia
ischemic: *see* Ischemia
junctional rhythms, atrioventricular nodal potentials, recording, H110
mechanical function, in hypoxia, neonatal, H469
membrane physiology, quantitative ultrastructural analysis, C147
mitochondria: *see* Mitochondria
muscle: *see* Muscle, heart; Myocardium
myocytes, substrate oxidation, amino acid stimulation, E461
nerves: *see* Cardiac nerves
oxidative phosphorylation, euthyroid, hypothyroid, and hyperthyroid, C213
peptide-chain initiation, glucocorticoid effects, E134
oxygen delivery, normoxic and hypoxic, H809
potentials: *see* Potentials
protein synthesis, fasting, E126
receptors: *see* Receptors
reperfusion and ischemia, contraction-relaxation changes, H637
reperfusion and ischemic arrest, myocardial contracture, H619
slow responses, valinomycin blockade of myocardial slow channels, H46
species differences, hyperosmolality and D600 effects, H276
weight, carbon monoxide-induced cardiomegaly, H516
Heart atria
calcium fluxes, contractility and, effect of A23187, C13
contraction: *see* Muscle, heart, contraction
cyclic AMP concentrations, angiotensin II effects, H281
fibrillation: *see* Fibrillation
flutter, reentrant excitation, H1
grayanotoxin I effects, C136
hypotension, renin release and, H175
premature stimulus (puppy), H683
pressure: *see* Pressure
vulnerability, parasympathetic influence (puppy), H683
Heart failure
length-tension curves, response to β-agonists, calcium ions, and glucagon, H690
volume overload, H690
Heart function
energy metabolism and, H784
interdependence with coronary flow and oxygen extraction, H784
Heart rate
autonomic control, H308
cardiogenic shock, H657
coronary flow and, H784
dead time, after hemorrhage, R279
dextran as radioactive microsphere suspending agent, H587
end-diastolic volume, ventricular (pig), H182
hemorrhage, in volume overload, H422
oxygen extraction and, H784
Heart sounds
accentuation, in anemia, blood viscosity and, H664
Heart ventricles
defibrillation threshold, temporal stability, H553
dimensions, left and right, during fibrillation, H231
fibrillation: *see* Fibrillation
function, global ischemia, H720
function, hemodilution, H767
morphology, normotensive and exercised spontaneously hypertensive rats, H193
pressure: *see* Pressure
pumping ability, normotensive and exercised spontaneously hypertensive rats, H193
sympathectomized, coronary ligation effects, H429
vectorcardiographic potentials, end-diastolic volume and (pig), H182
volume: *see* Volume
Heart ventricles, left
Bezold-Jarisch reflex, H188
biomechanics, in myocardial deformation, H523
compliance, ischemic arrest and reperfusion, H619
diastolic properties, in ischemia, H720
diastolic wall stress, apex, H247
diastolic wall stress, regional variations, H247
function after myocardial infarction (baboon), H413
function in ischemic arrest and reperfusion, H619
inhibitory receptors, distribution, H188
isovolumic pressure fall, time constant, H701
mass, during hemodilution, H767
transmural myocardial deformation, H523
Heart ventricles, right
pulmonary artery catheterization, H452
systolic hypertension, myocardial perfusion and function (pony), H628
Heat
blood flow, cutaneous (alligator), R160
Heat loss
respiratory evaporative (duck), R130
Heat production
brown adipose tissue, R121
in cold, brain serotonin and, R41
metabolic (duck), R130
muscle contraction and (frog), C20
Heat stress
serotonin and cold-induced metabolism, R41
Heatstroke
threshold, R228
Heidenhain pouch
hydrogen ion removal, mechanisms, E692
Hematocrit
carbon monoxide-induced cardiomegaly, H516
velocity and, distribution in capillaries, H251
Hematopoietic cells
ketone utilization, fetal, E330
Heme protein: *see* Protein
Hemidiaphragm
amino acid transport, E316
Hemodilution, crystalloid
ventricular performance and myocardial water content, H767
Hemodilution curves
cerebral tissue, photoelectric method for measurement (cat, monkey), H56
Hemodynamics
adenosine effects, intestinal, H707
blood viscosity changes, in hypothermia, H136
electrical stimulation of forebrain angiotensin and osmosensitive sites,

H445
hypertonic sodium chloride infusion, cardiac, H18
isovolumic pressure fall, ventricular, H701
oxygen consumption, myocardial, H237
photoelectric measurement method, cerebral (cat, monkey), H56
pulmonary artery catheterization, H452
ventricular fibrillation, H231
Hemodynamics, renal
angiotensin II, exogenous and endogenous, F605
angiotensin II hypertension, F174
hemorrhage, F46
renovascular hypertension, F310
sympathetic nerve activity, F557
Hemoglobin
carbon monoxide-induced cardiomegaly, H516
demethylation in erythrocytes, E150
Hemorrhage: *see also* Shock
arterial pressure stability, R279
end-diastolic volume, ventricular (pig), H182
heart rate response, R279
heart rate, with volume overload, H422
hemodynamics, renal, control, F46
survival and microvascular responses, anesthetics and, H753
Henle's loop
ascending, sodium excretion, control, F163
phosphate reabsorption, parathyroid hormone effect, F321
potassium transport, F515
thin, chloride, transepithelial gradient and fractional delivery, F192
thin ascending limb, urinary concentrating and diluting processes, F1
Hepatic artery
plasma flow, insulin and glucagon extraction, E88
Hepatic vein
blood sampling, intracaval cannulation, H262
Hepatocytes
ketone utilization, fetal, E330
Heterogeneity
intrarenal, F387
nephron, potassium and, F104
spatial and temporal perfusion, myocardium, H64
Hindlimb
arterial smooth muscle mechanics, H649
His bundle
recordings during junctional rhythms, utilizing signal averaging, H110
Histamine: *see also* H_1, H_2
deoxyribonucleic acid synthesis, fundic mucosa, E32
oxyntic cell cyclic AMP and hydrochloric acid, gastric mucosa (bullfrog), E140
pharmacology, esophageal sphincter, lower (baboon), E42
receptors: *see* Receptors
Histidine
infusions, urinary zinc excretion, F40
Histology: *see also* Morphology
myocardial cell surface, H461
nephron ultrastructure, F387
pacemaker cells, sinoatrial node, H407
renal papillary epithelium, antidiuresis and water diuresis, F69
Histones
postnatal, myocardial, H338
Homeostasis
mineral, estrogen effects (chick), E338
Homo-γ-linoleic acid
fibrinogen response, H223
Hormonal influences
gastric tissue, E422
Hormonal regulation
gluconeogenesis, E22, E295
phosphoenolpyruvate carboxykinase activity, brown fat, E197
Hormones
dosage, induction of liver enzymes, E374
gastrin release, antral, E410
receptors: *see* Receptors
Human chorionic gonadotropin: *see* Gonadotropin
Humoral factors
and mechanical factors, modulating neural input to renal vasculature, R64
Humoral mechanism
carbon dioxide, R265
Hunger: *see* Feeding
Hybridization
DNA-RNA, dose-response curves, analysis, E97
Hydraulic analysis
coronary stenosis, unsedated dogs, H350
Hydrochloric acid
cyclic AMP and, oxyntic cell, gastric mucosa (bullfrog), E140
Hydrocortisone
enzyme induction, liver, E374
Hydrogen bond
energy transduction processes, R99
Hydrogen ion concentration: *see* pH
Hydrogen ions
absorption, forestomach (llama), E1
removal from stomach and duodenum, different mechanisms, E692
secretion, distal, in respiratory alkalosis, F203
Hydrogen ions, transport
urinary acidification, F77
urinary, electrochemical gradient, F77
urinary epithelia, F77
Hydrogen-sodium exchange
freshwater mussel, R35
Hydrostatic pressure: *see* Pressure
β-Hydroxybutyrate
ketone body turnover and net ketone production, hepatic, E238
oxidation, fetal, E330
6-Hydroxydopamine
angiotensin II, intraventricular, H392
5-Hydroxytryptamine
serotonin, brain content, and cold-induced metabolism, R41
5-Hydroxytryptophan
serotonin, brain content, and cold-induced metabolism, R41
Hyperbaric oxygen: *see* Oxygen
Hypercapnia
cochlear potentials, F317
vascular changes, skeletal muscle, H72
Hyperchloremic metabolic acidosis: *see* Acidosis, metabolic
Hyperemia
function, contracting striated muscle and precapillary microvessels, interrelations, H494
functional, oxygen and, H505
intestinal, production by chyme constituents, H677
Hyperemia, reactive
adenosine effects, intestinal, H707
awake pigs, H435
convolution, myocardial, H87
nonsteady-state mass balance, myocardial, H87
oxygen uptake, transient, myocardial, H87
Hyperglycemia
obesity and, E191, E501
Hyperinsulinemia
glucose transport, adipocytes, E53
insulin binding, adipocytes, E53
Hyperlipemia
erucic acid metabolism, E509
Hyperosmolality
cardiac response, species differences, H276
vasoconstriction and vasodilation, coronary artery, H728
Hyperoxia
thyroid gland, E628
Hyperplasia
diet-induced adipocyte increase, E279
pancreatic, caerulein-secretin interaction, E714
Hyperpnea
carbon dioxide-induced, mathematical simulation, R265
isocapnic, mathematical simulation, R265
Hypertension
acute, cerebral vascular response to sympathetic nerves (dog, cat, monkey), H544
angiotensin II-induced, renal hemodynamics, F174
cadmium-induced, genetic influence, H385
cardiogenic chemoreflex, neural pathways, H345
Dahl rat, cadmium-induced, H385
deoxycorticosterone acetate, cardiac muscle mechanics, H82
pressor response, hypoxic lungs, H104
renovascular, kidney function, F310
two-kidney, renal function, F310
systolic, right ventricular, myocardial perfusion and function (pony), H628
Hypertension, spontaneous
blunted norepinephrine natriuresis, F425
cardiac muscle mechanics, H82
diuresis, exaggerated, F409
fluid volumes, H52
regional blood flow measurements by combined Fick and microsphere methods, H357
sodium, renal handling, F394
vasopressin, H361
ventricular morphology and pumping, exercise effects, H193
Hyperthermia
critical thermal maximum and, R228
Hyperthyroidism
calcium transport ATPase, cardiac sarcoplasmic reticulum, H745
creatine kinase, plasma clearance, E614
oxidative phosphorylation, heart, C213

Hypertrophy
pancreatic, caerulein-secretin interaction, E714
ventricular, morphology and pumping ability, exercise effects H193
Hypocalcemia
1,25-dihydroxyvitamin (cow), E634
parathyroid hormone (cow), E634
Hypometabolic behavior
blood flow redistribution, R89
Hypophysectomy
protein turnover, skeletal muscle, E231
Hypotension
atrial, renin release, H175
reflex circulatory changes due to pericoronary stimulation, H759
responses to hemorrhage, anesthetics and, H753
Hypotensive effect
dextran as radioactive microsphere suspending agent, H587
Hypothalamic lesions, dorsomedial
feeding responses, R168
glucose receptors and, R168
Hypothalamic obesity: *see* Obesity
Hypothalamus
electrical stimulation of angiotensin and osmosensitive sites, H445
temperature regulation during wakefulness, sleep, and hibernation (marmot), R82
thermosensitivity (duck), R130
Hypothermia
blood viscosity, H136
hemodynamic functions, H136
ischemic myocardium, segmental mechanical behavior and morphology, H736
oxygen consumption, H136
oxygen transport rate, H136
serotonin, brain content, and metabolic heat production, R41
Hypothyroidism
creatine kinase, plasma clearance, E614
oxidative phosphorylation, heart, C213
Hypoxanthine
adenosine effects, intestinal, H707
Hypoxia
coronary response to prostaglandins, H400
mechanical function, neonatal heart, H469
myocardial high-energy phosphates, neonatal, H475
myocardial performance, substrate effects, H144
myogenic responses, gut, H157
normoxia and, oxygen delivery heterogeneity, fluorometer study, H809
pressor response, airway, H104
pressor response, lungs, H104
right ventricular systolic hypertension (pony), H628
vascular changes, skeletal muscle, H72
weak and strong myocardium in series, H776

Ice
structure, R99
Ileum
adenosine effects on hemodynamics, oxygen delivery, and capillary fluid exchange, H707
calcium transport, cellular and paracellular, E726
capillary fluid exchange, E429
capillary permeability, E429
lymph flow, solute-coupled transport and, E429
oncotic pressure, solute-coupled transport and, E429
Imidazole
coronary response to prostaglandins, H400
Immunohistochemistry
prostaglandin-forming cyclooxygenase, localization in renal cortex, F451
Impedance
electrical admittance and, plethysmography, H821
Indicator-dilution: *see* Dye-dilution
Indocyanine green
cardiac output without blood withdrawal, H258
Indomethacin
cation transport, gastric mucosal cells, E16
coronary vascular response to myocardial oxygen consumption, H372
fibrinogen response, H223
organic acid secretory pathway and prostaglandin E excretion, F473
renal effects, F111
sodium excretion, F338
Infarction, myocardial
arrhythmias, H1
blood flow, dopamine analogue effects, H118
cellular electrophysiological marker, H559
coronary and transmural myocardial blood flow (pig), H435
localization, H559
reentrant excitation, H1
regional function and collateral circulation (baboon), H413
segmental mechanical behavior and morphology during hypothermia, H736
size, cellular electrophysiological marker, H559
size, sympathectomized ventricle, H429
Infusion: *see also* specific subject and site
continuous, protein turnover, measurement with nitrogen-15, E165
Ingestion
caloric: *see* Feeding
Innervation
cardiac: *see* Cardiac nerves
vascular, hindlimb muscles, H482
Inosine
adenosine effects, intestinal, H707
Inotropy
heart: *see* Muscle, heart, contraction
Input resistance
compartment models, neurons, R93
Instrumentation: *see* specific subject, site, and instrument
Insulin
amino acid transport, diaphragm, newborn, E304
^{14}C-labeled pyruvates, incorporation into blood glucose, E22
clearance rate, plasma, in man, E577
extraction, hepatic, augmented secretion, E88
gluconeogenesis, E295
hypothalamic obesity, E266
intestinal nucleotide cyclases, E539
kinetics, model, E577
metabolic and functional effects, perfused kidney, F52
metabolism, postexercise, E255
migrating complex, postprandial disruption, E666
myocardial slow channels and, H46
myoelectrical activity, small bowel, E249
plasma, disappearance, in man, E577
plasma levels, amino acid transport and, diaphragm, in newborn, E304
protein synthesis, initiation, skeletal muscle and heart, E126
receptors: *see* Receptors
sensitivity, adipocytes, hyperinsulinemia, E53
substrate cycling, E295
Insulin binding
adipocytes, in hyperinsulinemia, E53
adipocytes, streptozotocin diabetes, E175
anaerobiosis and ATP effects, soleus muscle, E606
negative cooperativity, E606
sugar transport and, correlation, E606
Insulin-glucagon ratio
molar, hepatic, E88
Insulin release
acetylcholine-stimulated pancreatic islets, E493
chloride fluxes and, interrelationship, pancreatic islets, E501
prandial, two stages, E103
Insulin secretion
β-cell transplantation, E119
fetal and newborn (sheep), E467
obese-hyperglycemic mice, E501
pancreatic islets (*ob/ob* mouse), E191
secretin and (pig), E381
vagotomy, truncular, E119
vasoactive intestinal polypeptide and (pig), E387
Intercellular spaces, lateral
sodium-to-chloride permeability, proximal convoluted tubule, F592
Interdigestive motor complex
test meals, disruptive effect, E661
Interstitial fluid: *see* Fluid
Interstitial pressure: *see* Pressure
Intestinal absorption
amino acids, in streptozotocin diabetes, E457
β-carotene, E686
cholinergic-adrenergic interactions, E402
chylomicron composition and, E183
diglycine, in streptozotocin diabetes, E457
pyridoxine hydrochloride, E272
solute-coupled transport and, E429
Intestinal adaptation
streptozotocin diabetes, E457, E699
Intestinal blood flow: *see* Blood flow
Intestinal chyme: *see* Chyme
Intestinal fluid
osmoregulation (teleost), R48
Intestinal growth
streptozotocin diabetes, E457
Intestinal hyperemia: *see* Hyperemia
Intestinal motility: *see* Motility
Intestinal mucosa
absorption: *see* Intestinal absorption
Intestinal secretion
cholinergic-adrenergic interactions, E402

Intestinal transport
amino acids, C73
amino acids, in vitamin B_6 deficiency, E316
calcium: *see* Calcium
folic acid, E678
gradient-coupled, C73
ion gradient hypothesis, C73
ions, cholinergic-adrenergic interactions, E402
sodium ion-dependent, membrane potentials and energetics, C73
sugar, C73
transmembrane gradients, C73
Intestines
adenosine effects on hemodynamics, oxygen delivery, and capillary fluid exchange, H707
development, postnatal, E451
myogenic responses to arterial pulse pressure, H157
myogenic responses to hypoxia, H157
myogenic vasoconstriction, H157
nucleotide cyclases, subcellular distribution, epithelial, E539
Intestines, large
calcium transport, in diabetes, E699
Intestines, small
Auerbach's plexus stimulation, polarity of effects on longitudinal muscle, E345
Escherichia coli, toxigenic and nontoxigenic, myoelectrical activity, E311
folic acid transport, E678
law of the intestine, E345
myoelectrical activity, somatostatin and, E249
prednisolone-induced epithelial lesions, prevention by prostaglandin E_2, E703
Intracaval cannulation
hepatic venous blood samples, H262
Inulin
biliary clearance rates, E570
nonelectrolyte permeability, cerebrovascular, H299
Invaginated membrane: *see* Membrane
Iodide
efflux, brain, after injection into caudate nucleus, F331
Iodoacetate
cardiac ischemia and reperfusion, H637
energy production, skeletal muscle (frog), C25
Ion gradient hypothesis
intestinal transport systems, C73
Ionic exchange
anoxic myocardium, H537
Ionophores
A23187, calcium fluxes and contractility, atrial, C13
A23187, prostaglandin E_2 synthesis, medullary, F213
A23187, sodium transport, bladder (toad), F586
calcium, inotropic effects, atrial, C13
potassium, myocardial, H46
RO 2-2985, calcium efflux, nephron, F381
Ions
content, esophageal smooth muscle (opossum), E709
electrodes, selective, flexible valinomycin, H455
flux, gastric mucosa, E7
inorganic, *p*-aminohippurate transport, kidney, F278
milieu, potassium permeability, parotid gland, C180
myocardial activity, H455
permeation, bladder, amphotericin B effects (toad), F507
permeation, proximal tubule (*Necturus*), F89
potential differences, proximal tubule (*Necturus*), F89
regulation (bivalves), R35
substitution, potassium permeability, parotid gland, C180
Ions, selectivity
diffusive flux, F234
proximal salt reabsorption, F234
proximal, transcellular current, F234
superficial, juxtamedullary, paracellular pathway, F234
Ions, transport
bladder epithelium (toad), F507
cholinergic-adrenergic interactions, intestinal, E402
distal nephron, F367
ethanol effects, gastric mucosa, E7
mussel, R35
parallel pathways, gastric mucosa, E7
Iron
delivery, transferrin saturation, R18
metabolism, transferrin saturation, R18
plasma, endogenous leukocytic mediator and, C118
plasma, endogenous pyrogen and, C118
Ischemia, cardiac
antiarrhythmic drugs, H574
global, reperfusion, H637
ischemic failure, H637
reperfusion, contraction-relaxation changes, H637
repetitive, reperfusion, H637
reproducible and uniform, H574
Ischemia, myocardial
arrest, prolonged, myocardial contracture, H619
blood flow, coronary and transmural myocardial (pig), H435
blood flow, dopamine analogue effects, H118
cardiac function, coronary flow, and oxygen extraction, interdependence, H784
cellular electrophysiological marker, H559
creatine phosphate, Tris effects, H167
force, transient, load changes, papillary, H267
global, diastolic relaxation, H720
preservation of ischemic myocardium, H736
segmental mechanical behavior and morphology during hypothermia, H736
sympathectomized ventricle, H429
Tris effects, H167
ventricular fibrillation, H231
Ischemia, renal
furosemide and acetylcholine effects, F131
postocclusive renal blood flow, F286
Islets of Langerhans: *see* Pancreatic islets
Isobutylmethylxanthine
sodium transport, bladder (toad), F586
Isometric twitch
cardiac muscle: *see* Muscle, heart
Isoprenaline
lingual lipase activity and, E416
Isoproterenol
coronary vascular response to increased myocardial oxygen consumption, H372
length-tension curves, in volume overload heart failure, H690
oxygen consumption, myocardial, H237
Isosmotic flow
proximal tubule, network thermodynamic model, F638
Isotonic transport
proximal tubule, network thermodynamic model, F638
Isotonic volume expansion: *see* Volume expansion
Isotope dilution
constant-infusion method, glucose-lactate interrelations (sheep), E487
Isovolumic pressure: *see* Pressure

Jejunum
pyridoxine hydrochloride, absorbed, phosphorylation and dephosphorylation, E272
sucrase activity, circadian rhythm, development, E437
Junctional complexes
sodium-to-chloride permeability, proximal convoluted tubule, F592
Juxtaglomerular cells
renin release, inhibition, angiotensins, F62
Juxtaglomerular complex
perfusate osmolality and feedback responses, F352
Juxtamedullary descending thin limb: *see* Henle's loop

Kaliuresis
nephron mass, reduced, cross-circulation study, F465
Ketamine hydrochloride
right ventricular systolic hypertension (pony), H628
Keto acid
branched chain, transamination, isolated perfused kidney, E47
3-Ketoacid CoA-transferase
ketone utilization, fetal hepatocyte, E330
Ketone bodies
turnover, hepatic, fasting and diabetes, E238
Ketones
production, hepatic, fasting and diabetes, E238
utilization, fetal hepatocyte, E330
Kidney
p-aminohippurate transport, anaerobic, F278
angiotensin II, exogenous and endogenous, F605
arginine metabolism, F376
blood flow: *see* Blood flow
blunted norepinephrine natriuresis, F425
cadmium, H385
catecholamines, surgical stress, F542
concentration gradient, transepithelial, F1
countercurrent multiplication system, F1
countercurrent system, F387
denervation, hemorrhage, F46

Kidney (*continued*)
developing, glomerulotubular balance after saline loading, F417
excretion rates, maintained volume load, H670
feedback: *see* Feedback
fuels, *p*-aminohippuric acid uptake, F137
fuels, uric acid uptake, F137
function, histamine receptors, F570
function, osmoregulation (teleost), R48
function, renovascular hypertension, F310
gluconeogenesis, high protein diet, E261
gluconeogenic enzymes, distribution, F246
glucose, metabolic and functional effects, F52
glutamine metabolism, high protein diet, E261
hemodynamics: *see* Hemodynamics
hemorrhage, hemodynamics, control, F46
Henle's loop: *see* Henle's loop
heterogeneity, F104, F387
histamine H_1 and H_2 receptors, characterization and function, F570
insulin, metabolic and functional effects, F52
insulin-sodium ion transport, F52
ion permeation, electrophysiology (*Necturus*), F89
ischemic insult, furosemide and acetylcholine effects, F131
keto acids, branched-chain, transamination, E47
mesotocin effects (bullfrog), F151
mineralocorticoid alkalosis, potassium ion deprivation and, F298
mitochondria: *see* Mitochondria
oxidative metabolism, F137
phosphate reabsorption, glucose-mediated inhibition, F430
plasma expansion, F156
potassium ions, loss, lactate and albumin effects, F228
potassium reabsorption and secretion (bullfrog), F26
potassium transport, contributions of individual nephron segments and populations, F515
pressure: *see* Pressure
progressive insufficiency, potassium transfer, distal tubular, F186
prostaglandin synthetase inhibition, F111
prostaglandins: *see* Prostaglandins
remnant, natriuretic factors with reduced nephron mass, F465
renin: *see* Renin
sodium: *see* Sodium
three-compartment model, F1
tricarboxylic acid intermediates, F137
urinary concentrating and diluting mechanisms, F1
vascular changes, cadmium-induced hypertension, H385
vasculature, neural input, humoral and mechanical factors, R64
vasodilation: *see* Vasodilation
vitamin D hydroxylases, estrogen effects (chick), E338
Kidney cells
energy-depleted, *p*-aminohippurate transport, F278
sodium-potassium pump and sodium-potassium-ATPase, disparity of temperature sensitivity (guinea pig, ground squirrel), C159
Kidney cortex: *see also* Kidney tubules, collecting
prostaglandin-forming cyclooxygenase, histochemical localization, F451
Kidney failure, acute
acetylcholine effects, F131
furosemide effects, F131
norepinephrine-induced, F131
Kidney medulla
interstitium, urinary concentrating and diluting processes, F1
prostaglandin E_2 synthesis, calcium effects, F213
Kidney papilla
antidiuresis and water diuresis, epithelial morphology, F69
collecting duct, chloride transport, F219
concentrating mechanism, epithelial, F69
intercellular spaces, epithelial, F69
Kidney tubules
cation transport, F576
cell volume, ouabain and colloid osmotic pressure effects, F480
fluid transport, transepithelial, model, F626
gluconeogenic enzymes, distribution, F246
glucose reabsorption, maximal, after saline loading, developing kidney, F417
permeability: *see* Permeability
prostaglandin synthetase inhibition, F111
separated, *p*-aminohippuric acid uptake, renal fuels for, F137
separated, uric acid uptake, renal fuels for, F137
sodium reabsorption, sympathetic nerve activity, F557
volume regulation, F480
Kidney tubules, collecting
antidiuretic hormone-induced intramembranous alterations, F440
chloride transport, papillary, F219
fluid delivery, potassium transport and, F515
membrane particle clusters, F440
sodium excretion, control, F163
Kidney tubules, collecting, cortical
cation transport, mineralocorticoid effects, F576
cell volume, ouabain and colloid osmotic pressure effects, F480
potassium addition, F104
potassium transfer, F186
prostaglandin-forming cyclooxygenase, F451
Kidney tubules, distal
cell volume, ouabain and colloid osmotic pressure effects, F480
chloride delivery, F219
phosphate reabsorption, parathyroid hormone effect, F321
potassium transfer, normal and remnant kidneys, F186
potassium transport, nephron segments and, F515
sodium handling, Kyoto-Okamoto rats, F394
sodium ions, renin secretion and, F611
superficial, net potassium addition, F104
Kidney tubules, distal convoluted
calcium transport, F492
calcium transport, parathyroid hormone-sensitive, F367
sodium transport, F492
Kidney tubules, proximal
cell volume, ouabain and colloid osmotic pressure effects, F480
chloride, labeled, transcellular and paracellular fluxes (*Necturus*), F617
electrically silent fluxes (*Necturus*), F617
ion permeation (*Necturus*), F89
peritubular capillary fluid uptake, F142
peritubular capillary permeability coefficient, F142
phosphate reabsorption, parathyroid hormone effect, F321
potassium transport, nephron segments and, F000
reabsorption determinants, as mechanisms of glomerulotubular balance, F142
salt and water flow, epithelial, network thermodynamic model, F638
sodium excretion, control, F163
uncoupling of sodium bicarbonate from sodium phosphate transport by bumetanide, F403
Kidney tubules, proximal convoluted
ion selectivity, salt reabsorption and, F234
sodium-to-chloride permeability, F592
Kinetics: *see* specific subject and site
Knowledge
complexity and, R201
Krebs-Ringer
bicarbonate-buffered, contraction, vascular smooth muscle, H208
Tris-buffered, contraction, vascular smooth muscle, H208

Lacrimal gland
flow and potentials, C8
perfusion, electrolyte solutions, C8
secretion, cholinergically induced, C8
stimulus-secretion coupling, C188
Lactase
jejunal activity, during development, E451
Lactate
arterial plasma concentration (sheep), E487
cardiac ischemia and reperfusion, H637
flux, myocardial, ischemic arrest and reperfusion, H619
glucose and, interrelations (sheep), E487
metabolism, lung, perfused, E619
metabolism, postexercise, E255
metabolism, septic shock, R219
oxidation, cardiac myocytes, amino acid stimulation, E461
plasma, transplacental gradients, H200
potassium ions loss, renal tissue, F228
production, myocardial ischemia, Tris effects, H167
Lactate dehydrogenase
carbon monoxide-induced cardiomegaly, H516
Langerhans' islets: *see* Pancreatic islets
Lanthanum chloride
sodium transport, cholinergic inhibi-

tion, bladder (toad), F564
Laplace transforms
numerical inversion, hepatic transport kinetics and plasma disappearance curves, E648
Lecithin
infusion, chylomicron composition, duodenal, E183
Length-tension relations
β-agonists, H690
calcium ions, H690
glucagon, H690
volume overload heart failure, H690
Leucine
release, renal, keto acids and, E47
Leukocytes
procoagulant activity, peritoneal, H333
Leukocytic endogenous mediator
and endogenous pyrogen, similarities, C119
Leydig cells
human chorionic gonadotropin, action, E218
pregnant mares serum gonadotropin, action, E218
Lidocaine
cardiac ischemia, H574
Ligands
zinc-binding, in milk, E556
Limb
blood flow, admittance plethysmography (human), H821
Linoleic acid
erucic acid metabolism and, E509
fibrinogen response, H223
Linolenic acid
fibrinogen response, H223
Lipase
caerulein-secretin interaction, trophic effects, pancreas, E714
enzyme activity and secretion, tongue, E416
Lipids
chylomicrons, lymph, E183
intestinal hyperemia and, H677
transport, intestinal, E686
Lipoprotein lipase
metabolism, erucic acid and, E509
Litorin
pancreatic acinar cells (amphibian), E112
Liver
bicarbonate in bile salt-independent fraction of bile flow, E158
cadmium, H385
enzymes, glucocorticoid induction, E374
erucic acid metabolism, E509
glucagon extraction, augmented secretion, E88
glucocorticoid induction of tryptophan oxygenase and tyrosine aminotransferase, E374
gluconeogenesis, effects of glucose load, E354
gluconeogenic intermediates, E354
glucose metabolism, postexercise, E255
glucose output, E88
glycogen formation, E354
glycogen resynthesis after exercise, skeletal muscle, R145
glycogen synthetase, E354
hepatic venous blood sampling, intracaval cannulation for, H262
insulin extraction, augmented secretion, E88
insulin-glucagon molar ratio, E88
ketone production, fasting and diabetes, E238
ketone utilization, fetal, E330
lysosomes, cardiogenic shock, H657
ornithine transcarbamoylase, in zinc deficiency, E203
phosphorylase, gluconeogenesis and, E354
platelets, removal, H314
transport kinetics, and plasma disappearance curves, modeling exposing errors in conventional approach, E648
Liver disease
ascites mobilization following furosemide or mannitol diuresis, F12
Load: *see* Preload; Afterload; Pressure overload; Volume load; Volume overload
Loading
acid, pH transients, diaphragm muscle, C49
force, transient, papillary, H267
glucose: *see* Glucose
saline: *see* Saline
sodium ion, renin secretion and, F611
Locomotor activity: *see* Exercise
Loop of Henle: *see* Henle's loop
Lung
hypoxic, pressor response, H104
intact, pulmonary capillary pressure, H569
lactate metabolism, E619
norepinephrine release, sympathetic nerve stimulation and, H803
vasoconstriction: *see* Vasoconstriction
Luteinizing hormone
gonadotropin release, E586
response to luteinizing hormone-releasing hormone and cyclic AMP, sex difference, E291
Luteinizing hormone-releasing hormone
activity, sex differences, E291
gonadotropin release, E586
Lymph
chylomicrons, lipid composition, E183
Lymph flow
intestinal, adenosine effects, H707
solute-coupled transport, effects, ileal, E429
Lysosomes
liver, cardiogenic shock, H657
protein turnover, thyroxine effects, skeletal muscle, E231

Macrophages
alveolar: *see* Alveolar macrophages
procoagulant activity, peritoneal, H333
Macula densa
feedback: *see* Feedback
renin inhibition, chloride and, F444
renin secretion, distal tubule sodium ions and, F611
Magnesium: *see* Calcium-magnesium-ATPase
Malate-aspartate shuttle
cardiac myocytes, E461
Manganese
membrane stabilization, vascular smooth muscle, C227
Mannitol
cardiac response, species differences, H276
diuresis, ascites mobilization, F12
flux, transmural, gastric mucosa, E7
hypertonic, vasoconstrictor response, coronary, H728
hypertonic, vasodilator response, coronary, H728
nonelectrolyte permeability, cerebrovascular, H299
phosphate reabsorption, renal, F430
Markers
cellular electrophysiological, in irreversible ischemic myocardial injury, H559
Mass
left ventricular, hemodilution and, H767
skeletal, postmenopausal women, E82
Mass spectrometry: *see* Spectrometry
Maternity: *see* Placenta; Fetus; Pregnancy
Mathematical models: *see* Models, and the specific subject and site
Maturation
membrane transport, cation changes, C251
Meals: *see* Feeding
Mechanics: *see* specific subject and site
Meclofenamate
coronary response to prostaglandins, H400
renal effects, F111
sodium excretion, F338
Membranes
basement, renal tubule cell, volume regulation, F480
biliary canalicular, permselectivity, E570
cardiac, mitochondria, C147
cardiac, physiology, quantitative ultrastructural analysis, C147
α-dihydrograyanotoxin II sensitivity (crayfish, salamander, frog), C204
epithelial, voltage clamp, automatic, C69
fluid absorption, transepithelial, F626
nonpituitary, gonadotropin-releasing hormone, binding, E227
particle clusters, collecting ducts, F440
permeability: *see* Permeability
plasma, physiology, quantitative ultrastructural analysis, C147
potentials: *see* Potentials
proton semiconductors and energy transduction, R99
proximal tubular transport, network thermodynamic model, F638
red blood cells, cation changes during maturation, C251
surface charges, screening by divalent cations, C109
Membranes, invaginated
capacitance (crayfish), C221
densities (crayfish), C221
tonic muscle fibers (crayfish), C221
transverse tubular system (crayfish), C221
Menopause
osteoporosis, postmenopausal, estrogen and, E338
skeletal mass, postmenopausal, E82
Mesentery
vascular bed, prostaglandins, H326
Mesotocin
renal and vascular responses (bullfrog), F151
Metabolic acidosis: *see* Acidosis
Metabolic alkalosis: *see* Alkalosis

Metabolic clearance rate
arginine vasopressin, E591, E598
Metabolic heat production: *see* Heat production
Metabolic patterns
transplanted β-cells, H119
vagotomy, truncular, E119
Metabolism: *see also* specific subject and site
contracting striated muscle, H494
hypometabolic behavior, blood flow distribution, R89
oxygen and, striated muscle, H505
Metanephrine
demethylation, erythrocytes, E150
Methazolamide
cochlear potentials, F317
Methemoglobin
demethylation, erythrocytes, E150
Methoxyinulin
biliary clearance rates, E570
3-*O*-Methyldopa
demethylation, erythrocytes, E150
4-*O*-Methyldopa
demethylation, erythrocytes, E150
(15S)-15-Methyl prostaglandin E_2 methyl ester
fibrinogen response, H223
Metiamide
oxyntic cell cyclic AMP and hydrochloric acid, gastric mucosa (bullfrog), E140
prostaglandins-adenylate cyclase-cyclic AMP interactions, gastric mucosa, E546
Micellar components
β-carotene, intestinal absorption, E686
Michaelis-Menten kinetics
sodium entry, skin (frog), C35
Microanalysis, electron probe: *see* Electron probe microanalysis
Microcirculation
adenosine effects, intestinal, H707
contracting striated muscle, H494
hemorrhage, anesthetics and, H753
oxygen and, striated muscle, H505
sympathetic stimulation, intestinal muscle and mucosa, H40
Microcoulometric analysis
chloride, thin loop of Henle, F192
Microelectrodes
cochlear potentials, F317
cellular electrophysiological marker of ischemic myocardial injury, H559
Microinjection
calcium efflux, nephron, ionophore RO 2-2985 effect, F381
tracer, glucose-mediated inhibition of phosphate reabsorption, kidney, F430
Micromaze
platelet chemotaxis, H23
Microperfusion
adrenergic agonists, submandibular excretory ducts, F548
Micropipette studies
erythrocyte membrane elasticity, C269
Micropuncture
calcium transport, distal convoluted tubule, F492
chloride transport, papillary, F219
interstitial pressure, renal, during volume expansion, F209
perfusate osmolality and tubuloglomerular feedback responses, F352
plasma volume expansion, renal and tubuloglomerular feedback responses, F156
potassium addition beyond superficial distal tubule, F104
potassium transfer, distal tubular, F186
prostaglandin synthetase inhibition, renal, F111
renin secretion and distal tubule sodium ions, F611
sodium, renal handling, in Kyoto-Okamoto rats, F394
sodium transport, distal convoluted tubule, F492
uncoupling of proximal sodium bicarbonate from sodium phosphate transport by bumetanide, F403
Microscopy, electron
pacemaker cells, sinoatrial node, H407
renal papillary epithelium, antidiuresis and water diuresis, F69
Microsomes
calcium-ATPase kinetics, sarcoplasmic reticulum, in hyperthyroidism, H745
Microspheres
autoregulation, spatial and temporal perfusion heterogeneity, myocardium, H64
blood flow, cerebral, fetal (ovine), H162
blood flow, coronary, characteristics (miniature pig), H601
blood flow, coronary, transmural distribution (miniature pig), H601
blood flow, gastrointestinal wall, H34
blood flow, glomerular and nutrient, measurement, methods, H592
blood flow, ischemic myocardium, dopamine analogue effects, H118
coronary occlusion in sympathectomized ventricle, H429
dextran as suspending agent, hypotensive effect, H587
dye-dilution cardiac output without blood withdrawal, H258
Fick method and, combined, for regional blood flow measurement, H357
histamine receptors, renal, F570
motility, gastrointestinal, H34
Microvascular responses
hemorrhage, anesthetics and, H753
Microvessels
precapillary, and contracting striated muscle, interrelations, H494
Migrating complex
gastrin and, E666
insulin and, E666
postprandial disruption, E661, E666
Milk
zinc-binding ligands, E556
Milk fever
1,25-dihydroxyvitamin D and parathyroid hormone, plasma levels (cow), E634
Mineral acids
metabolic acidosis, F345
Mineralocorticoids
alkalosis, renal, potassium ion deprivation, F298
cation transport, cortical collecting tubules, F576
receptors: *see* Receptors
Minerals
bone content, postmenopausal, E82
homeostasis, estrogen effects (chick), E338
Miniature transducer: *see* Transducers
Mitochondria
proton semiconductors and energy transduction, R99
Mitochondria, heart
membrane physiology, quantitative ultrastructural analysis, C147
oxidative phosphorylation, C213
uncoupling, myocardial slow channels and, H46
Mitochondria, renal
ammonia metabolism, F265
ammoniagenesis, high protein diet, E261
Models: *see also* specific subject and site
aortic pressure-dimension techniques (dog, sheep), H610
assay precision, plasma insulin, dissappearance, in man, E577
atomic, screening of membrane surface charges by divalent cations, C109
atrioventricular junctional rhythm, factorial design, H308
attenuation factor, neurons, R93
capacitance responses in baroreflex, H488
cellular energy conversion, brown fat, R121
computer, atrioventricular nodal potentials, recording during functional rhythms utilizing signal averaging, H110
computer-controlled servosystem, weak and strong myocardium in series, H776
dendrites, R93
dose-response curves, sigmoidal, simultaneous analysis, E97
flexible valinomycin electrodes, potassium ion-selective, H455
fluid transport, transepithelial, F626
hepatic transport kinetics and plasma disappearance curves, errors in conventional approach, E648
input resistance, neurons, R93
insulin, plasma, disappearance in man, E577
Laplace transforms, numerical inversion, hepatic transport kinetics and plasma disappearance curves, E648
myocardial infarction (baboon), H413
neuron, electrotonus, R93
neuronal, parameters, R93
osmosis, diffusion, convection, R3
oxygen uptake, reactive hyperemia, myocardial, H87
proton semiconductors and energy transduction, R99
proximal tubule, network thermodynamic model of salt and water flow, F638
pulmonary artery catheterization, H452
systems analysis, arginine vasopressin metabolism, E598
systems analysis, arterial pressure stability after hemorrhage, R279
transmural myocardial deformation, left ventricular wall, H523
velocity and hematocrit distribution in capillaries, H251
Models, compartmental
hepatic transport kinetics and plasma disappearance, E648

insulin, plasma disappearance, in man, E577
neurons, calibration, R93
pharmacokinetic, extracellular water measurements, F254
three-compartment, renal concentrating and diluting processes, F1
Models, mathematical
arginine vasopressin metabolism, E598
carbon dioxide-induced hyperpnea, R265
humoral and mechanical factors modulating neural input to renal vasculature, R64
hyperthermia and critical thermal maximum, R228
rubidium-86, myocardial and total body integral extraction ratios, H794
time-varying carbon dioxide signal, R265
water exchange, placenta, R181
Molecular biology: *see* Biology
Monitoring
intestinal motility, miniature transducer, E532
Morphology: *see also* Histology
ischemic myocardium during hypothermia, H736
renal papillary epithelial, antidiuresis and water diuresis, F69
ventricular, exercised spontaneously hypertensive rats, H193
Motility
Escherichia coli, toxigenic and nontoxigenic, small intestine, E311
gastric and duodenal, relationship (chicken), E670
gastrointestinal wall, H34
miniature transducer, intestinal, E532
small intestine (chicken), E670
somatostatin effects, small bowel, E249
vagal control, gastric, E366
Motor complex
interdigestive, test meal disruptive effect, E661
Mucosa: *see* site
Muscarinic receptors: *see* Receptors
Muscle
blood flow, intestinal, sympathetic stimulation, H40
contraction, neurogenic, cerebral arteries (goat), H131
contraction, piezoelectric force transducer for single muscle cells, C143
contraction, vagal stimulation, esophagus, E63
elastic stiffness, aortic pressure-dimension techniques (dog, sheep), H610
glycogen metabolism, postexercise, E255
insulin binding, soleus, E606
longitudinal, intestinal, Auerbach's plexus stimulation, polarity of effects, E345
motility and blood flow, gastrointestinal, H34
striated, contracting, and precapillary microvessels, interrelations, H494
striated, oxygen and arteriolar functional vasodilation, H505
sympathetic vasomotor outflows, hindlimb, H482
Muscle cells: *see also* Muscle, heart; Muscle, skeletal
chloride content (amphibian), C122
single, piezoelectric force transducer, C143
Muscle fibers
piezoelectric force transducer, C143
tonic, invaginated membrane (crayfish), C221
types, enzyme changes, neonatal, C97
Muscle, heart: *see also* Myocardium
cellular electrophysiological marker of ischemic injury, papillary muscle, H559
chloride, cellular content (amphibian), C122
compliance, left ventricular, ischemic arrest and reperfusion, H619
compliance, weak and strong myocardium in series, H776
contracture, ischemia and reperfusion, H619, H637
mechanical performance, papillary muscle, H144
mechanics, aging and hypertension, H82
mechanics, deoxycorticosterone acetate hypertension, H82
metabolic performance, papillary muscle, H144
paired pulse stimulation, hypertension, H82
peptide-chain initiation, glucocorticoid effects, E134
physiology, quantitative ultrastructural analysis, C147
protein synthesis, fasting, E126
refractory periods, hypertension, H82
substrate effects,myocardial performance, H144
weak and strong myocardium, in series, segmental dysfunction and, H776
Muscle, heart, contraction
aftercontractions, hypertension, H82
asynergy, weak and strong myocardium in series, H776
calcium ionophore effects, atrial, C13
calcium ionophore effects, myocardial, C13
contractile force, in volume overload heart failure, H690
contractile properties, papillary, in hypertension, H82
contractility, myocardial, during right ventricular systolic hypertension (pony), H628
contractility, myocardial, hypertonic sodium chloride infusion, H18
coronary flow and, H784
countershock effects, myocardial cells (chick embryo), H214
D600 effects, species differences, H276
endotoxin-induced myocardial failure, H150
force, transient, load changes, papillary, H267
hyperosmolality effects, species differences, H276
inotropy, myocardial, oxygen consumption and, H237
inotropy, species differences, H276
ischemia and reperfusion, H619, H637
isometric, load changes, papillary, H267
isometric twitch, hypertension, H82
isometric, uranyl ions, atrial, H295
isotonic, load changes, papillary, H267
mannitol effects, species differences, H276
oxygen extraction and, H784
positive inotropism, grayanotoxin I effects, C136
transmural myocardial deformation, left ventricular wall, H523
Muscle, heart, relaxation
diastolic, myocardial, in global ischemia, H720
ischemia and reperfusion, H619, H637
isovolumic pressure fall, left ventricular, H701
Muscle, papillary: *see* Muscle, heart
Muscle, skeletal
blood flow, asphyxia, H72
cable properties (crayfish), C221
chloride, cellular content (amphibian), C122
colchicine-treated, creatine and, C199
contraction, energy output (frog), C20
contraction, isometric and isovelocity (frog), C20
creatine and muscle mass, relation, C199
denervated, creatine and, C199
energy coupling to sodium transport (frog), C25
energy output during muscle contraction (frog), C20
energy turnover (frog), C25
enzyme changes, neonatal, thyroid deficiency and, C97
fast-twitch red, glycogen resynthesis, R145
fast-twitch white, glycogen resynthesis, R145
force generation, energy output and (frog), C20
microvascular responses to hemorrhage, H753
normal, creatine and, C199
peptide chain initiation, glucocorticoid effects, E134
pH transients, intracellular, measurement, diaphragm, C49
protein synthesis, fasting, E126
protein turnover, thyroxine effects, E231
slow-twitch red, glycogen resynthesis, R145
stereology (crayfish), C221
vascular changes, asphyxia, H72
Muscle, smooth
angiotensin receptor, esophageal (opossum), E738
bethanechol and progesterone, mechanical effects, antral and gastroduodenal junction, E422
chemical energetics, single isometric tetani, C1
cholecystokinin effects, gastric, E324
contraction, chemical energetics, taenia coli, C1
contraction, vagal stimulation-induced, esophageal (opossum), E392
potassium content, esophageal (opossum), E709
potentials: *see* Potentials

Muscle, smooth, vascular
arterial, mechanics, hindlimb, H649
arterial, series elasticity, hindlimb, H649
calcium pools, Tris effects, H208
contractile responses, Tris effects, H208
excitation-contraction coupling, Tris effects, H208
membrane stabilization by calcium, C227
neural input, humoral and mechanical factors, R64
venous, reactivity, extracellular sodium effects, H581
Muscularis serosa
motility and blood flow, gastrointestinal tract, H34
Mustard seed oil
erucic acid metabolism and, E509
Myocardial cells
calcium permeability, H461
countershock-type electric field stimulation (chick embryo), H214
electrophysiological markers, in irreversible ischemic injury, H559
excitation-contraction coupling, H461
external lamina, H461
glycocalyx, H461
potassium permeability, H461
sialic acid, H461
surface coat, H461
surface structure and function, H461
transmembrane potentials: *see* Potentials
Myocardial depressant factor
cardiogenic shock, H657
Myocardial failure
endotoxin, role of myofibril and venous return, H150
Myocardium: *see also* Muscle, heart
anoxic, energetic state and potassium loss, H537
autoregulation, spatial and temporal perfusion, heterogeneity, H64
biomechanics, left ventricular wall deformation, H523
blood flow: *see* Blood flow
contraction: *see* Muscle, heart, contraction
contracture: *see* Muscle, heart
grayanotoxin I effects, right atrial, C136
function, hypoxia, neonatal, H469
function, right ventricular systolic hypertension (pony), H628
function, Tris effects, H167
hemodynamic correlates, oxygen consumption, H237
high-energy phosphates, hypoxia effects, neonatal, H475
infarction: *see* Infarction
inotropy: *see* Muscle, heart, contraction
ionic activity, potassium-selective electrodes, H455
ischemia: *see* Ischemia
metabolic-electrophysiological relationships, H46
oxygen: *see* Oxygen
perfusion, right ventricular systolic hypertension (pony), H628
perfusion, spatial and temporal heterogeneity, H64
protein kinases, postnatal, H338
reactive hyperemia: *see* Hyperemia
rubidium-86, integral extraction ratio, H794
slow channels, electrophysiology, H1
slow channels, valinomycin blockade, glucose reversal, H46
substrate effects, normoxia and hypoxia, H144
transcapillary exchange, dopamine analogue effects, H118
transmural deformation, dynamic geometry, H523
transmural deformation, left ventricular wall, H523
water content, during hemodilution, H767
weak and strong in series, segmental dysfunction and, H776
Myocytes, cardiac
substrate oxidation, amino acid stimulation, E461
Myoelectrical activity
Escherichia coli, toxigenic and nontoxigenic, small intestine, E311
interdigestive motor complex, E661
migrating complex, E666
somatostatin effects, small bowel, E249
Myofibrils
ATPase: *see* Adenosine triphosphatase
endotoxin-induced myocardial failure, H150
Myogenic responses
intestinal, to arterial pulse pressure and hypoxia, H157
Myometrium
activation during parturition, gap junctions in, C168

NADH fluorescence
myocardial performance, normoxia and hypoxia, H144
Natriocentric theory
transepithelial fluid transport, F626
Natriuresis
blunted, norepinephrine effects, in spontaneous hypertension, F425
exaggerated, in spontaneous hypertension, F409
interstitial pressure, renal, F209
nephron mass, reduced, cross-circulation study, F465
renal sympathetic nerve activity, F557
two-component response to saline loading, F126
Necrotic ulcers
prednisolone-induced, intestinal, prevention by prostaglandin E_2, E703
Negative feedback: *see* Feedback
Neomycin
prednisolone-induced intestinal lesions, E703
Nephrectomy
unilateral, volume expansion, compensatory adaptation, F528
Nephron
calcium efflux, ionophore RO 2-2985 effect, F381
corticomedullary, prostaglandin synthetase inhibition, F111
differentiation, principles, F387
enzymes, F387
epithelial transport, F387
gluconeogenic enzymes, distribution in acidosis and starvation, F246
heterogeneity, potassium and, F104
ion permeation (*Necturus*), F89
natriuretic factors with reduced mass, F465
segments, individual, in potassium transport, F515
ultrastructure, F387
Nephron, distal
adenyl cyclase, F451
calcium transport, F367
hydrogen ion secretion, respiratory alkalosis, F203
prostaglandin-forming cyclooxygenase, F451
prostaglandin synthetase inhibition, F111
Nernst potentials: *see* Potentials
Nerve-muscle pathways
polarity, E345
Nerve suture technique
efferent vagal fibers, discharge, gastric antrum, E366
Nerves
slow sodium inactivation, trypsin modification (crayfish), C238
Neural factors
digitalis toxicity, H531
Neural pathways
cardiogenic hypertensive chemoreflex, H345
Neural regulation
blood flow, intestinal muscle and mucosa, H40
renal vasculature, humoral and mechanical factors, R64
renin, H175
Neurogenic contraction
cerebral arteries (goat), H131
Neurohypophysis
mesotocin (bullfrog), F151
Neuromuscular junction
transmitter release, hyperbaric oxygen and (lobster), C233
Neurons
compartmental models, calibration, R93
Neurotransmission
facilitation, angiotensin II effects, cardiac, H281
Neurotransmitters
synaptosomal triiodothyronine and thyroxine, E638
Neutron activation analysis
total body, postmenopausal, E82
Neutrophils
endogenous pyrogen and leukocytic endogenous mediator, similarities, C118
Newborn
amino acid transport, E304
aortic pressure-dimension techniques (dog, sheep), H610
corticosterone, plasma concentrations during development, E451
enzyme changes, skeletal muscle, thyroid deficiency and, C97
α-fetoprotein (ovine), E27
food intake, and appetite, R141
galactosyltransferase, colonic, E213
glomerulotubular balance, saline loading effects, F417
hypoxia effects on heart function, H469
hypoxia effects on myocardial high-energy phosphates, H475
insulin secretion (sheep), E467
intestinal development, E451
lactase, jejunal activity, E451
protein kinases, myocardium, H338
sucrase, jejunal activity, E451
zinc, intestinal absorption, E556

zinc-binding ligand in milk, E556
Nexus
physiology, quantitative ultrastructural analysis, C147
Nicotine
reflex effects, left ventricular, H188
Nicotinic receptors: *see* Receptors
Nitrogen-15
protein turnover, measurement, E165
Nitroglycerin
vasoconstrictor and vasodilator response to mannitol, coronary artery, H728
Nonelectrolytes
permeability, cerebrovascular, H299
Nonhistone proteins: *see* Protein
Nonmineral acids
metabolic acidosis, F345
Nonprotein sulfhydryl group
cardiogenic shock, H657
Norepinephrine
acute renal failure, furosemide and acetylcholine effects, F131
androgen-mediated sex differences, cardiovascular responses, H242
demethylation, erythrocytes, E150
energy conversion, cellular, brown adipose tissue, R121
glycogen resynthesis, muscle, after exercise, R145
isovolumic pressure fall, left ventricular, time constant, H701
length-tension curves, in volume overload heart failure, H690
membrane stabilization by calcium, vascular smooth muscle, C227
natriuresis, blunted, in isolated spontaneously hypertensive kidney, F425
oxygen consumption, myocardial, H237
pressor response, hypoxic lungs, H104
release, sympathetic nerve stimulation, lungs, H803
renin release, inhibition by angiotensins, kidney slices, F62
tritiated, cardiac reinnervation, H289
uptake, cardiac reinnervation, H289
vasoconstrictor and vasodilator response to mannitol, coronary artery, H728
Normoxia
hypoxia and, oxygen delivery heterogeneity, fluorometer study, H809
myocardial performance, substrate effects, H144
Nuclear protein kinase: *see* Protein kinase
Nuclear receptors: *see* Receptors
Nucleic acid
and protein, relationship, control theory, R205
Nucleotide cyclases
subcellular distribution, intestinal epithelium, E539
Nucleotides, cyclic
gonadotropin release, stimulated by luteinizing hormone-releasing hormone, E586
Nucleus
caudate, iodide injection and efflux from brain, F331
caudate, thiocyanate injection and efflux from brain, F331
external cuneate, vagal bradycardia elicited by stimulation, R286
Nucleus ambiguus
elicitation of vagal bradycardia, R286
Numerical inversion
Laplace transforms, hepatic transport kinetics and plasma disappearance curves, E648
Nutrient blood flow: *see* Blood flow
Nutrition: *see* Feeding, or the specific dietary constituent
Nycthemeral rhythm: *see* Rhythm

Obesity
fat cell increase, diet-induced, E279
hyperglycemia and, E191, E501
hypothalamic, pancreatic β-cell transplantation, E266
Occlusion: *see* site
Octanoate
oxidation, cardiac myocytes, amino acid stimulation, E461
Oleic acid
erucic acid metabolism and, E509
fibrinogen response, E223
Oncotic pressure: *see* Pressure
Open-loop gain
arterial pressure, after hemorrhage, R279
Optical isolator
voltage clamp, C69
Organ culture
antral, gastrin release, E410
Organ resistance: *see* Resistance
Organic acid
secretory pathway, blockade, F473
secretory pathway, prostaglandin E excretion, F473
Organogenesis
colon, E207
Ornithine transcarbamoylase
hepatic, activity, zinc deficiency, E203
Oscillation
arterial pressure, after hemorrhage, R279
Osmolality
perfusate, stop-flow pressure feedback responses, F352
perfusate, tubuloglomerular feedback responses, F352
plasma, placental, H200
venous smooth muscle reactivity, extracellular sodium effects, H581
urine, arginine vasopressin metabolism, E591
urine, prostaglandin excretion, renal, E624
Osmoreceptors: *see* Receptors
Osmoregulation
urinary bladder role (teleost), R48
Osmosis
bulk flow, R3
diffusion and convection, R3
flow fields, R3
fluid mechanics, R3
Poiseuille flow, R3
thermodynamics, irreversible, R3
transport of confusion, R1
two-component flow processes, R3
Osmotic pressure: *see* Pressure
Osteoporosis
postmenopausal, estrogen and, E338
Ouabain
cation transport, gastric mucosal cells, E16
digitalis toxicity, E531
membrane stabilization, vascular smooth muscle, C227
renin release, kidney slices (pig), F22
tubular cell volume regulation, F480
Overload: *see* Pressure Overload; Volume overload
Oxidation
cholesterol, by simultaneous sterol balance and breath analysis (primate), R55
glucose, renal, F52
β-hydroxybutyrate, fetal, E330
substrate, cardiac myocytes, amino acid stimulation, E461
Oxidation-reduction
cytochrome *c* turnover number, C213
Oxidative metabolism
renal, F137
Oxidative phosphorylation: *see* Phosphorylation
Oxygen
content, arterial, fetus (ovine), H162
debt, myocardial reactive hyperemia, H87
delivery, heterogeneity in normoxic and hypoxic states, fluorometry, H809
delivery, intestinal, adenosine effects, H707
difference, arteriovenous, fetus (ovine), H162
exposure, thyroid gland, E628
extraction, interdependence with cardiac function and coronary flow, H784
hyperbaric, spontaneous transmitter release (lobster), C233
reactive forms, phagocytizing alveolar macrophages, C103
repayment, myocardial reactive hyperemia, H87
tension, arteriolar functional vasodilation, striated muscle, H505
toxicity, thyroid gland, E628
transport, capillary, cardiac, H321
transport rate, hypothermia, H136
uptake, transient, myocardial reactive hyperemia, H87
utilization, cardiac myocytes, amino acid stimulation, E461
Oxygen buffers
myocardial reactive hyperemia, H87
Oxygen consumption
cerebral, fetus (ovine), H162
hypothermia, H136
intestinal, myogenic responses, H157
Oxygen consumption, myocardial
catecholamines, H237
coronary vascular response, H372
hemodilution, H767
ischemic arrest and reperfusion, H619
interdependence with heart function and coronary flow, H784
metabolic demand, H237
Oxyntic cells
cyclic AMP formation and hydrochloric acid secretion, dissociation, gastric mucosa (bullfrog), E140
Oxyntic gland mucosa
deoxyribonucleic acid synthesis, E565

Pacemaker cells
sinoatrial node, ultrastructure and physiology, H407
sinus node, rhythm, H379
sinus node, subthreshold stimulus, H379

Pacemakers
  autonomic control, atrioventricular junction, H308
Palmitic acid
  fibrinogen response, H223
Pancreas
  exocrine, secretagogue action, E517
  exocrine secretion, vasoactive intestinal polypeptide effects (pig), E387
  glucagon: *see* Glucagon
  insulin: *see* Insulin
  polypeptide release, mechanics, E443
  polypeptide response to meal, atropine and vagotomy effects, E443
  secretin, secretory effects (pig), E381
  size and composition, caerulein-secretin interaction, E714
  transplantation, prandial insulin release, E103
  vasoactive intestinal polypeptide, secretory effects (pig), E387
Pancreatic acinar cells
  amylase release, kinetics, E743
  peptides, isolated from skin, effects (amphibian), E112
Pancreatic acini
  amylase release, kinetics, E743
  secretagogues, action, E517
  secretory actions, E517
Pancreatic β-cells
  acetylcholine stimulation, E493
  chloride fluxes-insulin release, interrelationship, E501
  transplantation, feeding and metabolic patterns, E119
  transplantation, hypothalamic obesity, E266
Pancreatic enzymes
  intestinal hyperemia and, H677
Pancreatic islets
  acetylcholine-stimulated, E493
  calcium-45 efflux, glucose inhibition (*ob/ob* mouse), E191
  chloride flux-insulin release, interrelationship, obese-hyperglycemic mice, E501
  cholinergic effects, E493
  culture (*ob/ob* mouse), E191
Papaverine
  oxyntic cell cyclic AMP and hydrochloric acid, gastric mucosa (bullfrog), E140
  renin release, inhibition by angiotensins, kidney slices, F62
Papillary muscle: *see* Muscle, heart
Paracellular pathway
  sodium-to-chloride permeability, proximal convoluted tubule, F592
Parasympathetic innervation
  cardiac, choline acetyltransferase activity, H367
Parasympathetic nerves
  atrial vulnerability (puppy), H683
  atrioventricular junctional rhythm, H308
Parathyroid hormone
  adenylate cyclase stimulation, glomeruli, F458
  1–84 bovine, F96
  calcium transport, distal nephron, F367
  glomerular cyclic AMP, F458
  glomerular receptors (human and bovine), F96
  1–34 human, F96
  phosphate reabsorption, distal convolution, F321
  plasma levels, paresis (cow), E634
Paresis, parturient
  1,25-dihydroxyvitamin D and parathyroid hormone plasma levels (cow), E634
Parotid gland
  potassium permeability, ionic milieu and, C180
Particles
  mean flow, capillary, H251
Parturition: *see* Pregnancy
Pavlov pouch
  bicarbonate secretion and solute absorption (llama), E1
Penicillamine
  amino acid transport, E316
Pentagastrin
  esophageal sphincter, lower, responses (baboon), E42
  oxyntic cell cyclic AMP and hydrochloric acid, gastric mucosa (bullfrog), E140
Pentobarbital
  sodium transport, cholinergic inhibition, bladder (toad), F564
Pentose shunt
  hydrogen ion transport, urinary epithelia, F77
Peptides
  chain, initiation, skeletal muscle and heart, glucocorticoid effects, E134
  isolated from skin, action on pancreatic acinar cells (amphibian), E112
  vasoactive intestinal: *see* Vasoactive intestinal peptide
Peptone
  gastrin release, antral, E410
Perchlorate
  iodide and thiocyanate efflux, brain, F331
Perfusate
  flow rate, β-carotene intestinal absorption, E686
  osmolality: *see* Osmolality
Perfusion: *see* specific subject and site
Pericoronary stimulation
  circulatory reflex, H759
Peripheral resistance: *see* Resistance
Peristalsis
  esophageal, vagal stimulation-induced (opossum), E392
Peritoneum
  leukocytes, procoagulant activity, H333
Permeability
  calcium, myocardial cell, H461
  calcium, tubular, ionophore RO 2-2985 effect, F381
  calcium ions, sarcoplasmic reticulum, in hyperthyroidism, H745
  capillary, ileal, E429
  chloride, proximal tubule (*Necturus*), F617
  ions, bladder, effects of amphotericin B (toad), F507
  ions, proximal tubule (*Necturus*), F89
  nonelectrolytes, cerebrovascular, H299
  potassium, giant axon (squid), C55
  potassium, ionic milieu, parotid gland, C180
  potassium, myocardial cell, H461
  potassium, sublingual gland, C128
  proximal tubule, network thermodynamic model, F638
  skin (seasnake), R151
  transepithelial, proximal tubule (*Necturus*), F89
  water, placental, R181
Permeability coefficient
  peritubular capillary, F142
Permselectivity
  biliary canalicular membrane, E570
pH
  blood, and potassium and phosphorus, relationship during metabolic acidosis, F345
  β-carotene, intestinal absorption, E686
  elastic deformability, erythrocyte membrane, C269
  plasma, chronic metabolic acid-base disturbances, F291
  sodium entry kinetics, skin (frog), C35
  stat, hydrogen ion removal, stomach and duodenum, E692
  transients, intracellular, diaphragm muscle, measurement, C49
Phagocytosis
  alveolar macrophages, reactive forms of oxygen and chemiluminescence, C103
  platelet clearance, hepatic and splenic, H314
Pharmacokinetic compartmental model: *see* Models
Pharmacokinetics: *see* specific subject or site
Phenoxybenzamine
  cardiovascular responses, F199
Phenytoin
  cardiac ischemia, H574
Phosphate
  high-energy, anoxic myocardium, H537
  high-energy, myocardial, hypoxia effects, neonatal, H475
  hydrogen ion secretion, respiratory alkalosis, F203
  reabsorption, distal convolution, parathyroid hormone effects, F321
  reabsorption, glucose-mediated inhibition, kidney, F430
Phosphoenolpyruvate carboxykinase
  activity, brown fat, glucocorticoid regulation, E197
  activity, white adipose tissue, E197
  glutamine metabolism, renal, E261
Phosphofructokinase
  hormonal regulation of gluconeogenesis, E295
  neonatal skeletal muscle, thyroid deficiency and, C97
Phospholipids
  calcium-ATPase kinetics, sarcoplasmic reticulum, in hyperthyroidism, H745
  chylomicron composition, duodenal, E183
  metabolism, erucic acid and, E509
Phosphoprotein
  calcium-ATPase kinetics, sarcoplasmic reticulum, H745
Phosphorus
  plasma levels, paresis (cow), E634
  potassium and, during metabolic acidosis, F345
Phosphorylase
  liver, gluconeogenesis and, E354
Phosphorylation
  oxidative, heart, in euthyroidism, hypothyroidism, and hyperthyroidism, C213
  postnatal, myocardial, H338

pyridoxine hydrochloride, absorbed, jejunal, E272
Phosphorylcreatine
chemical energetics, smooth muscle, C1
Photoelectric method
hemodynamic changes, cerebral, measurement (cat, monkey), H56
Photon absorptiometry
skeletal mass, postmenopausal women, E82
Physalaemin
pancreatic acinar cells (amphibian), E112
Physical biology: *see* Biology
Physiology
terminology, concerning "gain," H117
Physostigmine
blood flow, gastrointestinal wall, H34
motility, gastrointestinal tract, H34
salivary secretion (tick), R76
Piezoelectric force transducer: *see* Transducers
Pilocarpine
salivary secretion (tick), R76
Pituitary gland
cyclic AMP response to gonadotropin-releasing hormone, sex difference, E37
monolayer cultures, luteinizing hormone activity, sex differences, E291
vasopressin, in spontaneous hypertension, H361
Pituitary gonadotropin: *see* Gonadotropin
Placenta: *see also* Fetus; Pregnancy
colloid osmotic pressure, plasma, H200
electrical potential difference, sodium fluxes and (sheep), F536
freezing point depression, H200
osmolality, plasma, H200
sodium fluxes, bidirectional, epithelial (sheep), F536
transplacental gradients, H200
water exchange, mathematical model, R181
Plasma
anion gap in chronic metabolic acid-base disturbances, F291
clotting factors: *see* Clotting factors
colloid osmotic pressures, placental, H200
constituents: *see* specific constituent and site
disappearance curves, model exposing errors in conventional approach, E648
flow, hepatic artery, insulin and glucagon extraction, E88
flow, portal vein, insulin and glucagon extraction, E88
osmolality, placental, H200
membrane: *see* Membranes
volume: *see* Volume
volume expansion: *see* Volume expansion
Platelets
aggregation, prostaglandin analogues, effects, H223
chemotaxis, H23
clearance, hepatic and splenic, H314
migration, H23
Plethysmography
admittance, blood flow measurement, human limb, H821
baroreceptors, plasma renin activity and, H29
PMSG: *see* Gonadotropin, pregnant mares serum
Poiseuille flow
osmosis, R3
Polarity
nerve-muscle pathways, intestinal, E345
Polymyxin B
prednisolone-induced intestinal lesions, E703
Polypeptide
pancreatic, response to meal, atropine and vagotomy effects, E443
release, pancreatic, mechanics, E443
urinary zinc excretion, F40
vasoactive intestinal: *see* Vasoactive intestinal polypeptide
Polyphloretin phosphate
prostaglandin-adenylate cyclase-cyclic AMP interaction, gastric mucosa, E546
Portal circulation
potassium reabsorption and secretion (bullfrog) F26
Portal vein
calcium pools, Tris effects, H208
contraction, Tris effects, H208
insulin, plasma disappearance, in man, E577
mechanical activity, spontaneous, Tris effects, H208
plasma flow, insulin and glucagon extraction, E88
Positive feedback: *see* Feedback
Postnatal development: *see* Newborn
Postmenopause: *see* Menopause
Potassium: *see also* Sodium-potassium-ATPase; Pump, sodium-potassium
concentrations, red blood cells, microanalysis (human, sheep), C245
content, regional differences, esophageal smooth muscle (opossum), E709
efflux, calcium and, sublingual gland, C128
excretion, albumin effects, F228
excretion, lactate effects, F228
external, giant axon (squid), C63
ionophore action, myocardial, H46
loss, anoxic myocardium, H537
net addition beyond superficial distal tubule, F104
phosphorus and, during metabolic acidosis, F345
reabsorption, kidney, perfused (bullfrog), F26
urinary, conflicting circadian synchronizers (monkey), R175
ventricular fibrillation, H231
Potassium ions
contraction, aorta and portal vein, H208
deprivation, mineralocorticoid alkalosis, renal, F298
determination, with flexible valinomycin electrodes, H455
inhibition, endogenous leukocytic mediator, C118
inhibition, endogenous pyrogen, C118
loss, albumin effects, F228
loss, perfused kidney, F228
loss, lactate effects, F228
tissue maintenance, perfused kidney, F52, F228
transport, gastric mucosal cells, E16
Potassium, permeability
giant axon (squid), C55
ionic milieu, parotid gland, C180
myocardial cell, H461
sublingual gland, C128
Potassium release
agonist-induced, submandibular gland, C256
ionic milieu, parotid gland, C180
sublingual gland, C128
Potassium secretion
cortical collecting tubules, F576
kidney, perfused (bullfrog), F26
mineralocorticoids and, F576
Potassium transport
active, cultured cells, temperature disparity and (guinea pig, ground squirrel), C159
distal tubular, normal and remnant kidneys, F186
kidney, perfused (bullfrog), F26
kidney, contributions of individual nephron segments and populations, F515
Potentials
action, giant axon (squid), C55
atrioventricular nodal, recordings during junctional rhythms utilizing signal averaging, H110
cardiac, end-diastolic volume and (pig), H182
cochlear, carbonic anhydrase and, F317
end-plate, transmitter release, hyperbaric oxygen and (lobster), C233
evoked, reflex circulatory changes, H759
evoked, pericoronary nerve stimulation, H759
ion permeation, proximal tubule (*Necturus*), F89
lacrimal, cholinergically induced, C8
lacrimal gland, C8
Nernst, plasma electrolytes, placental, H200
pacemaker, H308, H379, H407
placenta, sodium fluxes and (sheep), F536
resting, giant axon, sodium pump and (squid), C55
resting, lacrimal gland, C8
skin, applied, sodium entry kinetics (frog), C35
smooth muscle, gastric and duodenal motility (chicken), E670
surface, screening by divalent cations, C109
transmembrane, myocardial cells, countershock effects (chick embryo), H214
vectorcardiographic, Brody effect (pig), H182
vectorcardiographic, ventricular end-diastolic volume and (pig), H182
Potentials, membrane
acetylcholine-stimulated pancreatic islets, E493
p-aminohippurate transport, energy-depleted renal cells, F278
chloride flux-insulin release, pancreatic islets, E501
α-dihydrograyanotoxin II effects (crayfish, frog, salamander), C204
intestinal sodium ion-dependent

Potentials (*continued*)
transport, energetics, C73
lacrimal gland, C8
Pouch: *see* Heidenhain pouch; Pavlov pouch
Practolol
cardiac output response to hypertonic sodium chloride infusion, H18
Precapillary microvessels
and contracting striated muscle, interrelations, H494
Precapillary sphincter
cardiac, H321
Prednisolone
lesions, intestinal, prevention (cytoprotection) by prostaglandin E_2, E703
Pregnancy: *see also* Fetus; Placenta
estradiol, dehydroepiandrosterone and its sulfate, effects (baboon), E78
estrogen precursors (baboon), E78
fasting, fetal and newborn insulin secretory response (sheep), E467
α-fetoprotein, fetal-maternal distribution (ovine), E27
gap junctions, in myometrial activation during parturition, C168
parturition paresis, 1,25-dihydroxyvitamin D and parathyroid hormone plasma levels (cow), E634
Pregnant mares serum gonadotropin: *see* Gonadotropin
Preincubation
amino acid transport, E304
Preload
isovolumic pressure fall, H701
Pressor response
arterial, angiotensin metabolism, adrenocortical, with adrenal transplants (sheep), E525
pericoronary nerve stimulation, H759
Pressors
hypoxic lungs, H104
Pressure: *see also* Blood pressure
applied, and net water flux, gastric mucosa (frog), E361
atrial, hemodilution and, H767
atrial, renin release and, H175
central venous, catecholamine plasma levels, F119
colloid osmotic, plasma, placental, H200
colloid osmotic, renal and tubuloglomerular feedback responses, F156
colloid osmotic, renal tubule cell volume regulation, F480
gastric balloon, intestinal motility monitoring, E532
glomerular, feedback responses, perfusate osmolality and, F352
hydrostatic, renal, during volume expansion, F209
interstitial, renal, during volume expansion at reduced renal artery pressure, F209
interstitial, renal glomerulotubular balance and, F142
intragastric, gastric emptying and secretion, E552
isovolumic, time constant of fall, working left ventricle, H701
left ventricular, dextran as radioactive microsphere suspending agent, H587
left ventricular, fibrillation, H231
oncotic, renal, during volume expansion, F209
oncotic, solute-coupled transport, ileal, E429
pulmonary capillary, in intact lung, H569
renal artery, and interstitial pressure during volume expansion, F209
stop-flow, feedback responses, perfusate osmolality and, F352
stop-flow, renal and tubuloglomerular feedback responses, F156
venous, myogenic responses, gut, H157
Pressure, arterial
dextran as radioactive microsphere suspending agent, H587
dimension and, relations, measurement (dog, sheep), H610
myogenic responses, gut, H157
open-loop gain after hemorrhage, R279
oscillation after hemorrhage, R279
stability after hemorrhage, R279
Pressure-dimension relations
arterial, measurement (dog, sheep), H610
Pressure overload
right ventricular, during systolic hypertension (pony), H628
Procoagulant activity
leukocytes, peritoneal, H333
Progesterone
mechanical responses to bethanechol, antral and gastroduodenal smooth muscle, E422
Propranolol
cardiac function, coronary flow, and oxygen extraction, interdependence, H784
isometric contractions, atrial, H295
isovolumic pressure fall, left ventricular, time constant, H701
Prostacyclin: *see also* Prostaglandin I_2
adenylate cyclase stimulation, glomeruli, F458
coronary responses, H400
Prostaglandin A_2
interaction with adenylate cyclase-cyclic AMP system, gastric mucosa, E546
Prostaglandin analogues
fibrinogen response, H223
Prostaglandin D_2
fibrinogen response, H223
mesenteric vascular bed, H326
Prostaglandin E
excretion, organic acid secretory pathway, F473
Prostaglandin E_1
fibrinogen response, H223
Prostaglandin E_2
excretion, renal, E624
fibrinogen response, H223
interaction with adenylate cyclase-cyclic AMP system, gastric mucosa, E546
mesenteric vascular bed, H326
prednisolone-induced intestinal lesions, prevention, E703
synthesis, medullary, calcium effects, F213
synthesis, renal, antidiuretic hormone effects, F180
Prostaglandin $F_{2\alpha}$
excretion, renal, E624
fibrinogen response, H223
mesenteric vascular bed, H326
pressor response, hypoxic lungs, H104
Prostaglandin H_2
analogues, fibrinogen response, H223
Prostaglandin I_2: *see also* Prostacyclin
mesenteric vascular bed, H326
Prostaglandin inhibitors
gastric mucosa, E546
renal sodium excretion and, F338
Prostaglandin synthetase
inhibition, renal effect, F111
Prostaglandins
adenylate cyclase stimulation, glomeruli, F458
blood flow, postocclusive renal, F286
cation transport, gastric mucosal cells, E16
coronary responses, H400
coronary vascular response to increased myocardial oxygen consumption, H372
formation, cyclooxygenase and, renal cortex, F451
glomerular cyclic AMP, F458
inhibition, hemorrhage, renal, F46
interaction with adenylate cyclase-cyclic AMP system, gastric mucosa, E546
mesenteric vascular bed, H326
norepinephrine release by sympathetic nerve stimulation, lungs, H803
renal vasculature, humoral and mechanical factors, R64
synthesis, renal, antidiuretic hormone and, F180
Protein
caerulein-secretin interaction, trophic effects, pancreas, E714
degradation, thyroxine effects, skeletal muscle, E231
dietary, glutamine metabolism, renal, E261
heme, demethylation, erythrocytes, E150
nonhistone, myocardial, postnatal, H338
nucleic acid and, relationship, control theory, R205
plasma, in chronic metabolic acid-base disturbances, F291
serum, fetal (ovine), E27
Protein kinase
nuclear, myocardial, postnatal, H338
Protein synthesis
adrenal medulla (bovine), E475
glucocorticoid effects, skeletal muscle and heart, E134
gluconeogenesis and, E22
initiation in fasting, skeletal muscle and heart, E126
insulin effects, E22
thyroxine effects, skeletal muscle, E231
Protein turnover
dose regimens, E165
end products, E165
measurement, ^{15}N-labeled glycine, E165
thyroxine effects, skeletal muscle, E231
Proteinuria
cadmium-induced hypertension, H385
Proteolytic enzymes: *see* Enzymes
Protochemistry
and energy transduction, in biological systems, R99

Proton pumping
pH transients, diaphragm muscle, C49
Proton semiconductors
and energy transduction, in biological systems, R99
Provitamin A
absorption, intestinal, E686
Pulmonary artery
catheterization, H452
constriction, right ventricular systolic hypertension (pony), H628
Pulmonary capillaries
pressure: *see* Pressure
Pulmonary exchange vessels
intact lung, H569
Pulmonary valve
heart sounds, accentuation in anemia, H664
Pulmonary vascular resistance: *see* Resistance
Pulmonary vasoconstriction: *see* Vasoconstriction
Pulse
paired stimulation, cardiac muscle mechanics, hypertension, H82
Pulse pressure
arterial: *see* Pressure, arterial
Pump, sodium
electric current generation, giant axon (squid), C63
electrogenic, giant axon (squid), C55, C663
resting potential, giant axon (squid), C55
rheogenic, giant axon (squid), C55, C63
Pump, sodium-potassium
and sodium-potassium-ATPase, disparity of temperature sensitivity (guinea pig, ground squirrel), C159
Pumping
proton, pH transients, diaphragm muscle, C49
Pumping ability
ventricular, exercised spontaneously hypertensive rats, H193
Purkinje fibers
reentry, H1
Pyridine nucleotide, reduced
normoxic and hypoxic states, H809
Pyridoxine hydrochloride
absorbed, phosphorylation and dephosphorylation, jejunal, E272
Pyrogen
endogenous, and leukocytic endogenous mediator, similarities, C118
Pyruvate
^{14}C-labeled, incorporation into blood glucose, insulin and fasting effects, E22
Pyruvate carboxylase
distribution, nephron, in acidosis and starvation, F246

Quinidine
cardiac ischemia, H574

Radioautography
glycoprotein synthesis, fetal colon, E207
Radioimmunoassay
dose-response curves, sigmoidal, simultaneous analysis, E97
α-fetoproteins, fetal-maternal distribution (ovine), E27
pancreatic polypeptide release, E443
Radioligand assay
dose-response curves, sigmoidal, simultaneous analysis, E97
Radionuclide studies: *see* specific subject and site; *see also* Microspheres
Radiotelemetry
aortic pressure-dimension techniques (dog, sheep), H610
Reabsorption: *see* specific subject and site
Reactive hyperemia: *see* Hyperemia
Receptors
α-adrenergic, agonist-induced submandibular secretions, C256
α-adrenergic, blockade: *see* Blockade
α-adrenergic, ion transport, intestinal, E402
α-adrenergic, vasoconstriction, middle cerebral artery (goat), H131
β-adrenergic, agonist-induced submandibular secretions, C256
aldosterone, bladder epithelium (toad), C82
aldosterone, sodium transport and, bladder (toad), C90
angiotensin (fish), H95
angiotensin, blockade: *see* Blockade
angiotensin, esophageal smooth muscle (opossum), E738
arginine vasopressin metabolism, E591
baroreceptors, aortic, reflex responses of abdominal vascular capacitance, H488
baroreceptors, arterial, plasma renin activity, H29
baroreceptors, cardiopulmonary, plasma renin activity, H29
baroreceptors, low and high pressure, plasma renin activity, H29
cardiac, inhibitory, left ventricular, distribution, H188
cardiopulmonary, atrial pressure reduction, renin release and, H175
cytoplasmic, aldosterone binding, bladder epithelium (toad), C82
glomerular, for parathyroid hormone, F96
glucocorticoid, R115
glucocorticoid, aldosterone binding, bladder epithelium (toad), C82
glucocorticoid, sodium transport, bladder (toad), C90
glucose, dorsomedial hypothalamic lesions and, R168
gonadotropin-releasing hormone, nonpituitary tissues, E227
H_1 and H_2, blockade, esophageal sphincter, lower (baboon), E42
histamine H_1 and H_2, renal, characterization and function, F570
hormone, dose-response curves, sigmoidal, simultaneous analysis, E97
insulin, adipocytes, E53
insulin, streptozotocin diabetes, E175
mineralocorticoid, aldosterone binding, urinary bladder epithelium (toad), C82
mineralocorticoid, sodium transport, bladder (toad), C90
muscarinic-cholinergic, agonist-induced submandibular secretions, C256
muscarinic, ion transport, intestinal, E402
nicotinic, ion transport, intestinal, E402
nuclear, aldosterone binding, bladder epithelium (toad), C82
osmoreceptors, electrical activation of anteroventral third ventricle, H445
urinary bladder epithelium (toad), C82, C90
Recruitment
capillaries, cardiac, H321
Red blood cells: *see* Erythrocytes
Reentry
excitation, in cardiac arrhythmias, H1
Reflection coefficient
proximal tubule, network thermodynamic model, F638
water exchange, placenta, R181
Reflexes
baroreceptor, aortic, abdominal vascular capacitance, H488
baroreceptor, renin control, H29
Bezold-Jarisch, left ventricular, H188
cardiocardiac, neural pathways, H345
cardiovascular, asphyxia, H72
cardiovascular, hemorrhage heart rate with volume overload, H422
chemoreflex, cardiogenic hypertensive, neural pathways, H345
circulatory, pericoronary stimulation, H759
left ventricular, inhibitory receptors and, H188
Refractory periods
mechanical, cardiac muscle, hypertension, H82
Relaxation
heart muscle: *see* Muscle, heart, relaxation
Renal artery
clamping, two-component natriuretic response to saline loading, F126
occlusion, blood flow responses, F286
pressure: *see* Pressure
Renal nerves
hemorrhage, renal dynamics, F46
postocclusive renal blood flow, F286
sodium reabsorption, tubular, F557
vasculature response, humoral and mechanical factors, R64
Renal vein
occlusion, partial, glomerulotubular balance and, F142
Renin
inhibition, chloride and, F444
neural regulation, H175
plasma activity, baroreceptors, low and high pressure, H29
plasma activity, chloride and, F444
plasma activity, renovascular hypertension, F310
reflex control, H29
release, atrial pressure, graded reductions, H175
release, calcium control, kidney slices (pig), F22
release, EDTA and EGTA, kidney slices (pig), F22
release, inhibition, renal, angiotensins II and III, F62
secretion, distal tubule sodium ions and, F611
Renin-angiotensin system
hypertension, renal hemodynamics, F174
renovascular hypertension, F310

Renin substrate
  angiotensin II, exogenous and endogenous, renal, F605
Renovascular hypertension: *see* Hypertension
Reoxygenation
  weak and strong myocardium in series, H776
Reperfusion, cardiac: *see* Heart
Reserpine
  salivary secretion (tick), R76
Resistance
  flow, hypothermia, H136
  organ, measurement by combined Fick and microsphere methods, H357
  peripheral, angiotensin and α-adrenergic receptor blockade, F199
Resistance, vascular
  capacitance responses in baroreflux, H488
  coronary, hypertonic mannitol, H728
  hypothermia, H136
  pulmonary venous, intact lung, H569
Resistivity
  blood, admittance plethysmography, limb (human), H821
Respiration
  serotonin and cold-induced metabolism, R41
Respiration, tissue
  oxyntic cell, gastric mucosa, cyclic AMP and hydrochloric acid in (bullfrog), E140
Respiratory alkalosis: *see* Alkalosis
Respiratory chemosensors: *see* Chemosensors
Respiratory heat loss: *see* Heat loss
Rest
  and meditation, blood flow redistribution, R89
Resuscitation
  ventricular defibrillation threshold, temporal stability, H553
Reticuloendothelial system
  platelet removal, hepatic and splenic, H314
Rheogenic sodium pump: *see* Pump
Rhythm
  adrenal, R210
  endogenous ultradian, exposure to prolonged continuous light, R250
  nycthemeral, adrenal responsiveness to ACTH, R210
  sinus node pacemaker cells, mechanism, H379
Rhythm, circadian
  decomposition, R250
  dissociation with conflicting temporal information (monkey), R175
  feeding and metabolic patterns after vagotomy and β-cell transplantation, E119
  internal synchronization, under constant light, R243
  jejunal sucrase activity, development, E437
  phase angle, R243
  ultradian components, R250
Ribonucleic acid
  caerulein-secretin interaction, trophic effects, pancreas, E714
  deoxyribonucleic acid and, hybridization, dose-response curves, E97
  protein turnover, skeletal muscle, E231
  synthesis, postnatal, myocardial, H338
RO 2-2985: *see* Ionophores
RO 4-4602: *see* L-Amino-acid decarboxylase inhibitor
Rubidium-86
  glomerular and nutrient blood flow measurement, H592
  myocardial and total body integral extraction ratios, analysis, H794
Rubidium chloride
  radioactive, glomerular and nutrient blood flow measurement, H592
Rubidium ions
  transport, gastric mucosal cells, E16

Saline loading
  glomerulotubular balance and, developing kidney, F417
  renal sodium handling and, F394
  two-component natriuretic response, F126
Salivery ducts
  adrenergic agonists, F548
Salivary glands
  potassium efflux, calcium and, C128
Salivary secretion
  transmitters, and antagonists, effects (tick), R76
Salt
  and water homeostasis, renovascular hypertension, F310
  flow, proximal tubular, network thermodynamic model, F638
  reabsorption, proximal, ion selectivity and, 234
Salt-water balance
  skin (seasnake), R151
Saphenous vein
  reactivity, extracellular sodium effects, H581
Saralasin
  cardiovascular responses, F199
  renin release, inhibition, kidney slices, F62
Sarcoplasmic reticulum
  calcium transport ATPase, in hyperthyroidism, H745
  chloride content, cellular (amphibian), C122
  physiology, quantitative ultrastructural analysis, C147
Satiety: *see* Feeding
Saxitoxin
  membrane sensitivity (crayfish, salamander, frog), C204
Science
  complexity and limits to knowledge, R201
Screening
  membrane surface charges, C109
Secretagogues
  pancreatic acinar responses, E517
Secretin
  amylase release, pancreatic acini, E743
  caerulein and, interaction on pancreatic size and composition, E714
  secretory effects, isolated perfused pancreas (pig), E381
Sedation
  hyperthermia and critical thermal maximum, R228
Sensitivity: *see* specific subject and site
Septic shock: *see* Shock
Series elasticity
  smooth muscle: *see* Muscle, smooth
Serotonin
  brain, metabolic heat production in cold, R41
  cardiogenic hypertensive chemoreflex, neural pathways, H345
Serous glands, lingual: *see* Tongue
Servosystem
  computer-controlled, weak and strong myocardium in series, H776
Sex differences
  androgen-mediated, cardiovascular, H242
  hypertension, cadmium-induced, H385
  luteinizing hormone response to luteinizing hormone-releasing hormone, E291
  pituitary cyclic AMP response to gonadotropin-releasing hormone, E37
Sex hormones
  1α,25-dihydroxyvitamin D_3, serum (chick), E338
  vitamin D hydroxylases, renal (chick), E338
Shell formation
  estrogen effects (chick), E338
Shock
  cardiogenic, cysteine and, H657
  hemorrhagic: *see also* Hemorrhage
  hemorrhagic, survival and microvascular responses, anesthetics and, H753
  septic, glucose metabolism, R219
  septic, lactate metabolism, R219
Short-circuit current: *see* Currents
Shunts
  bypass tracts, reentrant excitation, cardiac, H1
  pentose, hydrogen ion transport, urinary epithelia, F77
  right heart bypass, rubidium-86 integral extraction ratios, H794
Shwartzman reaction
  leukocytes, peritoneal, H333
Sialic acid
  myocardial cell, H461
Signal averaging: *see* Models
Silicone elastomers
  potassium ions loss, renal tissue, F228
Sinoatrial node
  grayanotoxin I effects, C136
  pacemaker cells: *see* Pacemaker cells
Sinus node
  pacemaker cells: *see* Pacemaker cells
Sinus node artery
  atrioventricular junctional rhythm, H308
SITS: *see* 4-Acetamido-4′-isothiocyanostilbene-2,2′-disulfonic acid
Skeletal mass
  postmenopausal women, E82
Skeletal muscle: *see* Muscle, skeletal
Skin
  blood flow: *see* Blood flow
  isolated, chloride absorption-base excretion coupling (frog), F33
  peptides, pancreatic acinar cell responses (amphibian), E112
  permeability (seasnake), R151
  sodium and water exchange (seasnake), R151
  sodium entry, kinetics (frog), C35
Sleep
  slow-wave (marmot), R82

temperature regulation (marmot), R82
Slow channels, myocardial
electrophysiology, H1
valinomycin blockade, glucose reversal, H46
Slow-wave sleep: *see* Sleep
Smooth muscle: *see* Muscle, smooth
Sodium
absorption, cortical collecting tubules, F576
absorption, mineralocorticoids and, F576
balance, and excretion, control, F163
depletion, cardiovascular responses, F199
entry kinetics, skin (frog), C35
fluxes, bidirectional, placenta (sheep), F536
fluxes, ratio, placenta (sheep), F536
fluxes, transmural, gastric mucosa, E7
permeability, chloride and, proximal convoluted tubule, F592
potassium ion loss, renal tissue, F228
pump: *see* Pump
regulation (mussel), R35
renal handling, blood pressure and, F425
renal handling, hypertensive and normotensive rats, F394
retention, mechanisms, in renovascular hypertension, R310
slow inactivation, axonal, trypsin modification (crayfish), C238
Sodium-ammonium exchange
freshwater mussel, R35
Sodium bicarbonate
uncoupling from sodium phosphate, proximal tubules, by bumetanide, F403
Sodium-calcium exchange
cellular and paracellular, ileum, E726
dietary calcium and, ileum, E726
Sodium chloride
deprivation, renin secretion and, F611
hypertonic, cardiac output response, H18
hypertonic, hemodynamic action, cardiac, H18
loading, renin secretion and, F611
renin inhibition, F444
Sodium excretion
control, F163
developing kidney, F417
hypertensive and normotensive rats, F394
prostaglandin inhibitors, F338
renovascular hypertension, F310
two-component natriuretic response, F126
Sodium gradient hypothesis
folic acid transport, small intestine, E678
Sodium-hydrogen exchange
freshwater mussel, R35
Sodium ions
extracellular, venous smooth muscle reactivity, H581
intestinal membrane potentials and, C73
intestinal transport energetics and, C73
Sodium ions, transport
gastric mucosal cells, E16
insulin and, perfused kidney, F52
tetracycline-induced inhibition, bladder (toad), F359
urinary bladder epithelium (toad), C82
Sodium phosphate
uncoupling from sodium bicarbonate, proximal tubules, by bumetanide, F403
Sodium-potassium-ATPase
and sodium-potassium pump, disparity of temperature sensitivity (guinea pig, ground squirrel), C159
membrane stabilization, vascular smooth muscle, C227
nephron, F387
Sodium-potassium pump: *see* Pump
Sodium reabsorption
parathyroid hormone effect, distal convolution, F321
potassium ion loss, renal tissue, F228
tubular, sympathetic nerve activity, F557
Sodium transport
aldosterone receptors and, bladder (toad), C90
carbamylcholine inhibition, bladder (toad), F586
cholinergic agents, bladder (toad), F564
cyclic GMP, bladder (toad), F586
distal convoluted tubule, F492
energy coupling, skeletal muscle (frog), C25
freshwater mussel, R35
norepinephrine effects, renal, F425
spontaneous hypertension, renal, F425
Sodium-water exchange
skin (seasnake), R151
Soleus muscle
insulin binding, anaerobiosis and ATP effects, E606
Solute-coupled fluid
transport, ileal, E429
Solutes
absorption, forestomach (llama), E1
Somatostatin
myoelectrical activity, small bowel, E249
Species differences
glucocorticoid receptors, R115
hyperosmolality and D600, cardiac responses, H276
Spectrin
erythrocyte membrane elasticity, C269
Spectrometry, mass
prostaglandin synthesis, renal, F180
Sphincter
esophageal: *see* Esophageal sphincter
precapillary, cardiac, H321
Spinal cord
C-1 transection, for digitalis toxicity, H531
Spleen
platelets, removal, H314
SQ 20,881: *see* Converting enzyme inhibitor
S-T segment
elevation, cardiogenic shock, H657
Starling forces
interstitial pressure during volume expansion, F209
Starvation: *see* Fasting
Stellate ganglion
sodium reabsorption, tubular, F557
Stenosis
coronary, arteriography and hydraulic analysis, in unsedated dogs, H350
Stereology
skeletal muscle (crayfish), C221
Steroids
cardioactive, giant axon (squid), C55, C63
Sterol balance
and breath analysis, simultaneous, in cholesterol oxidation (primate), R55
isotopic and chromatographic (primate), R55
Stiffness
elastic, aortic pressure-dimension techniques (dog, sheep), H610
Stimulus-secretion coupling
lacrimal gland, C188
renin release, kidney slices (pig), F22
Stoichometry
sodium pump, giant axon (squid), C55, C63
Stomach: *see also* Gastric
antiperistalsis (chicken), E670
antrum: *see* Antrum
bicarbonate secretion, cardiac region (llama), E1
bicarbonate secretion, forestomach (llama), E1
cell proliferation, deoxyribonucleic acid synthesis and, E565
fundic mucosa: *see* Fundic mucosa
hydrogen ion removal, different mechanisms, E692
intragastric pressure: *see* Pressure
motility: *see* Motility
solute absorption, cardiac region (llama), E1
solute absorption, forestomach (llama), E1
volume-pressure relations, E552
Stop-flow pressure: *see* Pressure
Strain-gauge transducer: *see* Transducers
Streptozotocin diabetes: *see* Diabetes
Stress
active, development in arterial smooth muscle, hindlimb, H649
exercise: *see* Exercise
surgical, catecholamines, renal handling, F542
wall: *see* Wall stress
Stroke
heat: *see* Heatstroke
Subclavian baroreceptors: *see* Receptors
Sublingual gland
potassium efflux, calcium and, C128
Submandibular gland
adrenergic agonists, excretory ducts, F548
agonist-induced secretions, C256
potassium release, agonist-induced, C256
Substrates
cardiac myocytes, amino acid stimulation, E461
cycling, hormonal control of gluconeogenesis, E295
myocardial performance, normoxia and hypoxia, H144
Sucrase
circadian rhythm activity, jejunal, development, E437
jejunal activity, during development, E451
Sucrose
nonelectrolyte permeability, cerebrovascular, H299
Sucrose space
extracellular water measurements, F254

Sudden death: *see* Death
Sugar
  transport, and insulin binding, correlation, E606
  transport, intestinal, C73
Superoxide anions
  chemiluminescence, phagocytizing alveolar macrophages, C103
Surface charges
  membrane, screening by divalent cations, C109
Surface cooling: *see* Cooling
Surface potentials: *see* Potentials
Surgical stress
  catecholamines, renal handling, F542
Survival
  after hemorrhage, anesthetics and, H753
Sympathectomy
  angiotensin II, central effects, H392
  reflex circulatory changes, H759
  ventricular, coronary ligation effects, H429
Sympathetic nerves
  angiotensin II, intraventricular, H392
  arterial pressure oscillation after hemorrhage, R279
  atrioventricular junctional rhythm, H308
  cerebral vascular responses (dog, cat, monkey), H544
  norepinephrine uptake, H289
  sodium reabsorption, tubular, F557
  vasomotor outflows to hindlimb muscles, H482
Sympathetic-parasympathetic balance
  norepinephrine release, lungs, H803
Sympathetic stimulation
  blood flow, intestinal muscle and mucosa, H40
  cerebral vascular response (dog, cat, monkey), H544
  norepinephrine release from lung, H803
  vasoconstriction, middle cerebral artery (goat), H131
Sympathomimetics
  salivary secretion (tick), R76
Synaptosomes
  brain, triiodothyronine and thyroxine, E638
Synchronizers
  circadian: *see* Rhythm, circadian
Systems analysis: *see* Models, and the specific subject and site
Systolic blood pressure: *see* Blood pressure
Systolic hypertension: *see* Hypertension

T system
  physiology, quantitative ultrastructural analysis, C147
Tachycardia
  sinus, pacemaker cell rhythm, H379
Taenia coli
  chemical energetics, single isometric tetani, C1
Taste: *see also* Feeding
  aversion, cholecystokinin and caerulein effects, R23
Taylor dispersion
  oxygen uptake, myocardial reactive hyperemia, H87
Temperature: *see also* specific condition
  conflicting circadian synchronizers (monkey), R175
  metabolic heat production, brain serotonin and, R41
  sensitivity, sodium-potassium pump and sodium-potassium-ATPase, disparity (guinea pig, ground squirrel), C159
Temperature, body
  biothermal injury, subclinical and clinical, R228
  blood flow, cutaneous (alligator), R160
  circadian rhythms under constant light, R243
  critical thermal maximum, induced hyperthermia and, R228
  endogenous ultradian rhythms in prolonged exposure to continuous light, R250
  heat: *see* Heat
  high core, critical thermal maximum, R228
  membrane stabilization by calcium, vascular smooth muscle, C227
  ventilation, central chemical control (turtle), R257
Temperature, body, regulation: *see also* Thermoregulation
  avian (duck), R130
  hibernation (marmot), R82
  metabolic heat production in cold, R41
  serotonin, brain content, R41
  sleep (marmot), R82
  wakefulness (marmot), R82
Template, chromatin
  postnatal, myocardial, H338
Terminology, physiological, H117
Test meals: *see* Feeding
Testosterone
  luteinizing hormone activity, sex differences, E291
  sex differences, cardiovascular responses, H242
Tetanus
  isometric, chemical energetics, smooth muscle, C1
Tetracaine
  prostaglandin E_2 synthesis, medullary, F213
Tetracycline
  sodium ion transport, inhibition, bladder (toad), F359
Tetrodotoxin
  membrane sensitivity (crayfish, salamander, frog), C204
Theophylline
  oxyntic cell cyclic AMP and hydrochloric acid, gastric mucosa (bullfrog), E140
  sodium entry kinetics, skin (frog), C35
Thermodynamics
  irreversible, osmosis, R3
  network, cellular energy conversion, brown adipose tissue, R121
  network model, salt and water flow, proximal tubule, F638
  proton semiconductors and energy transduction, R99
Thermogenesis
  bond graph, brown fat, R121
Thermoregulation: *see also* Temperature, body, regulation
  physiological, cutaneous blood flow (alligator), R160
  wakefulness, sleep, and hibernation (marmot), R82
Thermosensitivity
  hypothalamic (duck), R130
Thiocyanate
  efflux, brain, after injection into caudate nucleus, F331
Three-compartment model: *see* Models
Thromboxanes
  coronary responses, H400
Thyroid deficiency
  enzyme changes, skeletal muscle, neonatal, C97
Thyroid gland, function
  oxygen toxicity, E628
  plasma creatine kinase clearance and, E614
Thyroid hormones
  brain synaptosomes, E638
Thyroidectomy
  protein turnover, skeletal muscle, E231
Thyroparathyroidectomy
  glucose-mediated inhibition of phosphate reabsorption, renal, F430
  phosphate reabsorption, distal convolution, F321
Thyroxine
  ^{125}I-labeled, brain synaptosomes, E638
  metabolism, synaptosomal, E638
  protein turnover, skeletal muscle, E231
  utilization, oxygen toxicity and, E628
Time constant
  isovolumic pressure fall, working left ventricle, H701
Tissue: *see also* specific site
  brown adipose: *see* Brown fat
  nonpituitary, gonadotropin-releasing hormone, membrane binding, E227
  respiration: *see* Respiration
  white adipose: *see* Adipose tissue
Tongue
  lipase, enzyme activity and secretion, E416
  serous glands, lipase activity, E416
Torpor
  temperature regulation (marmot), R82
Toxicity
  digitalis: *see* Digitalis
  oxygen: *see* Oxygen
Tracers: *see also* Microspheres, and the specific subject and site
  kinetics, extracellular water measurements, F254
Transamination
  branched-chain keto acids, kidney, E47
Transcendental meditation
  blood flow redistribution, R89
  technique, R89
Transcription
  postnatal, myocardial, H338
Transducers
  miniature, intestinal motility in unrestrained chronic rats, E532
  piezoelectric force, for single muscle cells, C143
  strain-gauge, intestinal motility, E532
Transferrin
  diferric vs. monoferric, R18
  saturation, iron delivery, R18
Transit time analysis
  insulin, plasma, in man, E577
Transmembrane gradients
  intestinal transport system, C73
Transmembrane potentials: *see* Potentials
Transmitters: *see also* Neurotransmitters and their antagonists, action on
  salivary secretion (tick), R76

release, hyperbaric oxygen and (lobster), C233
Transplant
adrenal, angiotensin metabolism (sheep), E525
Transplantation
pancreatic, prandial insulin release, E103
pancreatic β-cells, E119, E266
Transport kinetics: *see* specific subject and site
Tricarboxylic acid cycle
ammonia metabolism, F265
intermediates, renal, F137
Triglyceride
infusion, chylomicron composition; duodenal, E183
metabolism, erucic acid and, E509
transport, duodenal, E183
Triiodothyronine
^{125}I-labeled, brain synaptosomes, E638
Tris(hydroxymethyl)aminomethane
buffered Krebs-Ringer, contraction, vascular smooth muscle, H208
cardiac output response to hypertonic sodium chloride infusion, H18
contractile responses, aorta, H208
contractile responses, portal vein, H208
hydrogen ion secretion, distal, in respiratory alkalosis, F203
ischemic myocardium, H167
Trypsin
modification of slow sodium inactivation, axonal (crayfish), C238
Trypsinogen
caerulein-secretin interaction, trophic effects, pancreas, E714
Tryptophan oxygenase
glucocorticoid induction, liver, E374
Tubuloglomerular feedback: *see* Feedback
Turpentine
fibrinogen response, H223
Tween 80
and dextran, as radioactive microsphere suspending agent, hypotensive effect, H587
Tyramine
isometric contractions, atrial, H295
Tyrosine aminotransferase
glucocorticoid induction, liver, E374

Ulcers
necrotic, prednisolone-induced, intestinal, protection by prostaglandin E_2, E703
Ultradian rhythm: *see* Rhythm
Ultrafiltration
zinc, serum, F40
Ultrasonic dimension crystals
left ventricular dimensions after myocardial infarction (baboon), H413
Ultrastructure: *see also* Histology; Morphology
analysis, quantitative, in cardiac membrane physiology, C147
Uncoupling
electromechanical, myocardial, H46
mitochondrial, myocardial slow channels and, H46
proximal sodium bicarbonate from sodium phosphate transport by bumetanide, F403
Uranyl ions
isometric contractions, atrial, H295
Urea
antidiuresis and water diuresis, renal papillary epithelium, F69
plasma, transplacental gradients, H200
protein turnover measurement, end product, E165
Urea cycle
arginine metabolism, renal, F376
enzymes, in zinc deficiency, E203
Urecholine
gastrin release, in gastric fistula, E720
Uric acid
uptake, separated tubules, renal fuels for, F137
Urinary acidification: *see* Acidification
Urinary bladder
absorption (teleost), R48
aldosterone binding, epithelial, cytoplasmic and nuclear receptors (toad), C82
aldosterone receptor occupancy (toad), C90
electrophysiology, epithelial (toad), F507
ion permeation, epithelial, effects of amphotericin B (toad), F507
ion transport, epithelial (toad), F507
osmoregulatory role (teleost), R48
sodium ion transport, tetracycline-induced inhibition (toad), F359
sodium transport (toad), C90
sodium transport, carbamylcholine inhibition (toad), F586
sodium transport, cholinergic agents (toad), F564
sodium transport, cyclic GMP (toad), F586
Urinary concentrating mechanism
thin loop of Henle, F192
Urinary constituents or excretion: *see* specific subject
Urinary epithelia
hydrogen ion transport, F77
Urinary volume: *see* Volume
Urine
flow, renal sympathetic nerve activity, F557
osmolality: *see* Osmolality

Vagal blockade
reflex circulatory changes, H759
Vagal bradycardia: *see* Bradycardia
Vagal-cholinergic control
pancreatic polypeptide release, E443
Vagal denervation
deoxyribonucleic acid synthesis, fundic mucosa, E32
Vagal fibers, efferent
discharge, gastric antrum, E366
Vagal stimulation
esophageal contractions (opossum), E392
esophageal responses, E63
Vagotomy
bilateral cervical, angiotensin receptor, esophageal (opossum), E738
deoxyribonucleic acid synthesis, gastric mucosa, E565
fundic, gastrin release, E720
pancreatic polypeptide response to a meal, E443
satiety, R23
truncular, feeding and metabolic patterns, E119
Vagus nerve
atrial vulnerability (puppy), H683
atrioventricular junctional rhythm, H308
deoxyribonucleic acid synthesis, gastric, E565
gastric motility, control, E366
gastrin release, in gastric fistula, E720
hypothalamic obesity, E266
insulin release, prandial, two stages, E103
Valinomycin
blockade, myocardial slow channels, glucose reversal, H46
electrodes, flexible, potassium ion-selective, H455
Vasa recta
chloride, analysis, F192
Vascular bed
mesenteric, prostaglandins, H326
Vascular changes
skeletal muscle, during asphyxia, H72
Vascular hindrance: *see also* Resistance
hypothermia, H136
Vascular resistance: *see* Resistance
Vascular responses
renal, mesotocin (bullfrog), F151
Vascular smooth muscle: *see* Muscle, smooth
Vasculature
renal, neural input, humoral and mechanical factors, R64
Vasoactive intestinal peptide
amylase release, pancreatic acini, E743
intestinal nucleotide cyclases and, E539
Vasoactive intestinal polypeptide
secretory effects on pancreas (pig), E387
Vasoconstriction
adrenergic, hindlimb muscles, H482
adrenergic, middle cerebral artery (goat), H131
coronary, mannitol and, H728
intestinal, myogenic, H157
pulmonary, pressor response to hypoxia, H104
Vasodilation
arteriolar, oxygen and, H505
arteriolar, striated muscle, H505
cholinergic, hindlimb muscles, H482
coronary, indomethacin and, H372
coronary, mannitol and, H728
coronary, myocardial oxygen consumption, H372
renal, acute renal failure, norepinephrine-induced, F131
Vasomotor outflow
sympathetic, to hindlimb muscles, H482
Vasopressin
pituitary content, in hypertension, H361
plasma concentration, in hypertension, H361
prostaglandins E_2 and $F_{2\alpha}$, excretion, renal, E624
sodium ion transport, bladder (toad), F359
sodium transport, bladder (toad), F586
urinary excretion, in hypertension, H361
Vasopressin, arginine
constant infusion, E591
metabolic clearance rate, E591, E598

Vasopressin, arginine (*continued*)
metabolism, modeling and systems analysis, E598
metabolism, receptor-mediated mechanism, E591
pulse injection, E591
Vectorcardiography
potentials: *see* Potentials
Veins
angiotensin and α-adrenergic receptor blockade, F199
capacitance responses in baroreflex, H488
small, responses to hemorrhage, anesthetics and, H753
Velocity
capillary distribution, effect on red cell distribution, H251
critical, ratio, capillary, H251
Vena cava
cannulation, for hepatic venous blood samples, H262
Venous occlusion
admittance plethysmography, human limb blood flow, H821
Venous pressure: *see* Pressure
Venous return
endotoxin-induced myocardial failure, H150
Venous smooth muscle: *see* Muscle, smooth
Ventilation
central chemical control (turtle), R257
Ventricles
brain: *see* Brain; Cerebroventricles
heart: *see* Heart ventricles
Verapamil
prostaglandin E_2 synthesis, medullary, F213
Veratridine
reflex effects, left ventricular, H188
Viscosity, blood
heart sound accentuation in anemia, H664
hemodynamic functions, surface hypothermia, H136
Vitamin B_6
absorbed, jejunal metabolism, E272
deficiency, amino acid transport, E316
Vitamin D
calcium transport, ileum, E726
Vitamin D hydroxylases
estrogen effects, renal (chick), E338
Vitamins
water-soluble, intestinal transport, E678
Voltage clamp
amplifier, operational, C69
automatic, C79
calcium transport, ileum, E726
chemical, chloride fluxes, proximal tubule (*Necturus*), F617
inexpensive, high output, for epithelial membranes, C69
optical isolator, C69
trypsin modification of slow sodium inactivation, axonal (crayfish), C238
Volume: *see also* Blood volume
end-diastolic, ventricular, vectorcardiographic potentials (pig), H182
extracellular fluid, spontaneous hypertension, H52
fluid, spontaneous hypertension, H52
plasma, acclimation to water restriction, R237
plasma, ascites mobilization, diuresis and, F12
plasma, spontaneous hypertension, H52
renal tubule cell, ouabain and colloid osmotic pressure effects, F480
renal tubules, regulation, F480
urinary, conflicting circadian synchronizers (monkey), R175
Volume expansion
diuresis, exaggerated, in spontaneous hypertension, F409
diuretics and compensatory adaptation, interactions, F528
interstitial pressure, renal, F209
isotonic, catecholamine plasma levels, F119
plasma, renal responses, F156
plasma, tubuloglomerular feedback responses, F156
two-component natriuretic response, F126
Volume load, maintained
cardiac output, H670
glomerular filtration rate, H670
renal excretion rate, H670
Volume overload
heart failure, H690
heart rate response to hemorrhage, H422
Volume-pressure relations
gastric, E552

Wakefulness
temperature regulation (marmot), R82
Wall
gastrointestinal, blood flow, H34
gastrointestinal, motility, H34
left ventricular, transmural deformation, H523
Wall force
coronary flow and, H784
oxygen extraction and, H784
Wall stress
diastolic, left ventricular apex, H247
diastolic, left ventricular, regional variations, H247
Water
absorption, forestomach (llama), E1
body, total, spontaneous hypertension, H52
content, myocardial, during hemodilution, H767
diuresis, renal papillary epithelium, F69
exchange, placenta, mathematical model, R181
excretion, renovascular hypertension, F310
extracellular, measurement, F254
filtration, gastric mucosa (frog), E361
flow, proximal tubular, network thermodynamic model, F638
flux, gastric mucosa (frog), E361
free, clearance, renin inhibition by chloride and, F444
restriction, acclimation and body fluid distribution, R237
Water-sodium exchange
skin (seasnake), R151
Weaning
circadian rhythm of jejunal sucrase activity, E437
prevention, sucrase, jejunal, circadian rhythm, E437
Weight
heart, carbon monoxide-induced cardiomegaly, H516
microvascular responses to hemorrhage, H753
White adipose tissue: *see* Adipose tissue
Work
heart muscle, weak and strong myocardium in series, 776

X-ray microanalysis
red blood cells (human, sheep), C245
Xenon-133 clearance
heating and cooling, skin (alligator), R160

Zeitgeber
conflicting temporal information (monkey), R175
Zinc
absorption, intestinal, zinc-binding ligands in milk, E556
concentration, serum, ultrafilterable, F40
deficiency, liver ornithine transcarbamoylase activity, E203
deficiency, plasma ammonia activity, E203
excretion, urinary, amino acid infusions, F40
excretion, urinary, zinc sulfate infusions, F40
metabolism, E203
plasma, endogenous leukocytic mediator and, C118
plasma, endogenous pyrogen and, C118
Zinc-65
absorption, intestinal, zinc-binding ligand in milk, E556
Zinc-binding ligands
intestinal absorption of zinc, E556
Zinc sulfate
infusions, urinary zinc excretion, F40
Zymogen granules
lingual lipase, enzyme activity and secretion, E416

Author Index to Volume 235

Abboud, F. M., H29, H188
Abelmann, W. H., H247
Abercrombie, R. F., C63
Abesamis, C., E82
Ackerly, J. A., H281
Ackermann, U., H670
Adams, H. R., H720
Adaniya, H., H379
Adcock, R. C., H276
Adibi, S. A., E457
Adrogué, H. J., F291
Akanuma, Y., E175
Al-Awqati, Q., F77
Allen, C., H361
Allen, G. J., H776
Aloia, J. F., E82
Alpert, B. E., F458
Altsheler, P., F338
Altura, B. M., H208
Altura, B. T., H208
Amano, T., H57
Anagnostopoulos, T., F89
Anand, R. S., E448
Anderson, D., H628
Anderson, R. J., F46
Andreoli, T. E., F1
Anika, S. M., R23
Apstein, C. S., H637
Arant, B. S., Jr., F417
Ardaillou, R., F96
Armstrong, W. McD., C13
Arndorfer, R. C., E63, E392
Arruda, J. A. L., F203
Arslan, Y., F528
Atkinson, E. R., R228

Babbs, C. F., H553
Bahl, O. P., E218
Baker, P. J., H242
Baldwin, K. M., C97
Balfe, J. W., F174
Banks, R. O., F570
Barba, W., C245
Barlow, C., H809
Barnes, G. E., H429
Bass, P., E532
Battaglia, F. C., E467
Battilana, C. A., F192
Batzri, S., E743
Beam, H. E., E437
Beatty, O., III, H581
Beck, L. Y., H429
Becker, J. H., C159
Beeuwkes, R., III, E624
Behsudi, F. M., E422
Belic, N., H559
Bell, P. D., F352
Bell, T. G., F451
Bellinger, L. L., R168
Belloni, F. L., H372
Berbari, E. J., H110
Berggren, P.-O., E191
Berl, T., F46
Berliner, R. W., F1
Berman, B. J., F331
Bernardis, L. L., R168
Berry, C. A., F234, F592
Bhattacharya, J., F192
Biag, H., H610
Bing, O. H. L., H619, H776
Bisgard, G. E., H628
Bishop, V. S., H759
Black, A. J., F52, F228
Blantz, R. C., F142
Bloom, G., E88
Bloor, C. M., H413, H601
Blum, A. L., E16
Blumberg, A. L., H281
Boelkins, J. N., H258
Boerboom, L. E., H258
Bogart, B. I., C256
Bogen, D., H247
Bohlen, H. G., H40
Bohr, D. F., C227
Bonvalet, J. P., F394
Bonventre, J. V., F69
Boron, W. F., C49
Borucki, L. J., F199
Botelho, S. Y., C8
Boumendil-Podevin, E. F., F278
Boyd, M. A., H592
Boyd, R. D. H., F536
Bradley, S. E., E570
Bravo, E. L., H175
Bray, G. A., E266
Brensilver, J., F291
Brenton, B. C., H118
Bresler, E. H., F626
Brody, M. J., H392, H445
Bronner, C., C245
Brooker, G., H281
Brooks, S., R168
Brosnan, J. T., E261
Brosnihan, K. B., H175
Brown, F. C., E42
Brown, S. F., H333
Bruce, L. A., E422
Bruni, F. D., H150
Buggy, J., H445
Buitrago, A., E191
Bull, J. M., R228
Bullard, V., H628
Bumpus, F. M., H95
Burch, H. B., F246
Burg, M. B., F576
Burke, J. F., R219
Burns, A. H., E461
Burns, E. M., H407
Burns, T. W., E311
Butler, T. M., C1
Butte, J., C199
Buu, N. T., F542
Bynum, G. D., R228

Caflisch, C. R., F126
Calaresu, F. R., R286
Campanha, V. D.-P., H295
Campbell, P. J., C97
Candia, O. A., C69
Cannon, J. G., H118
Carlson, D. E., R64
Carlson, G. M., E311
Carlson, T. H., H223
Carrière, S., F119
Carson, B. S., E467
Carter, D. C., E443
Carter-Su, C., C73
Castell, D. O., E42
Castranova, V., C103
Chan, W., E47
Chance, B., H809
Chandrasena, L. G., E487
Chansel, D., F96
Chapnick, B. M., H326
Chen, R. Y. Z., H136
Chenoweth, M., E295
Chern, S. I., R41
Cherrington, A. D., E238
Cherry, J. M., H523
Chew, C. S., E140
Chez, R. A., E78
Chia, W. Y., R41
Chien, S., H136
Chiu, Y.-L., C143
Choi, S., F246
Chou, C. C., H34, H677
Chou, M. C. Y., E88
Chow, L., R55
Christakos, S., E218
Christensen, A. C., R18
Christensen, J., E392, E709
Christenson, R. K., E448
Chu, C., F246
Churchill, M. C., F611
Churchill, P. C., F611
Ciriello, J., R286
Clark, S. B., E183
Clement, J., H619
Cohen, E. B., E63
Cohen, J. J., F52, F228
Cohn, J. N., H231
Cohn, S. H., E82
Colindres, R. E., F321
Colston, K. W., E338
Colton, C. A., C233
Colton, J. S., C233
Conde, M. V., H131
Conlee, R. K., R145
Conlon, T. P., E112
Connett, R. J., C25
Cooke, A. R., E7
Cooper, S., C212
Copeland, E. M., E32
Corman, B., F430
Corry, R. J., H367
Cortell, S., F126
Costanzo, L. S., F492
Cotner, C. L., H574
Covell, J. W., H422
Cox, M., F359
Cox, R. H., H649
Coy, D. H., E249
Crandall, E. D., C269
Cranefield, P. F., H1
Critz, A. M., C269
Crofton, J. T., H361
Cronin, R. E., F131
Crozatier, B., H413
Crutchfield, F. L., E638
Cserr, H. F., F331

Daggett, W. M., H237, H767
D'Agrosa, L. S., H407
Daigneault, A., F119
Dallman, M. F., R210
Danhof, I. E., E422
Daniel, E. E., C168
D'Arrigo, J. S., C109
Dávalos, M., F605
Davies, D. G., R160
Davies, R. E., C1
Davis, B. B., F213
Davis, J. O., F310
Dawson, D. C., E7
De Champlain, J., F119
Deckelbaum, L., H637
Deeds, D. G., F26
DeForrest, J. M., F310
De Lean, A., E97
DeLuca, H. F., E634
Dencker, H., E577
Denniss, A. R., F548
Dent, J., E392
De Rouffignac, C., F430
De Torrente, A., F131
De Wardener, H. E., F163
De Weer, P., C55, C63
De Wever, I., E661, E666
Diana, J. N., H118
DiBona, G. F., F409, F557
Dietz, T. H., R35
Diezi, J., F528
DiScala, V. A., F440
Dittrich, H. C., H118
Dodds, W. J., E63, E392
Dormer, R. L., E517
Dousa, T. P., E546
Dozois, R. R., E546
Drake, R. E., H569
Dratman, M. B., E638
Dubois, A., E42
DuBose, T. D., Jr., F219
Duling, B. R., H494, H505
Duncan, J. R., E556
Dunn, A., E295
Dunn, M. J., E624
Dunson, W. A., R151
DuPont, E., H429
Durham, J. S., H262

Edelman, A., F89
Edelman, I. S., C82, C90
Eeckhout, C., E661, E666
Effron, M. B., H167
Ehrenfeld, J., F33
Elashoff, J., E714
Ellis, K., E82
Ellory, J. C., C159
Elson, J., H559
Engeland, W. C., R210
Engelhardt, W. V., E1
Epstein, M., F376
Erdmann, A. J., III, H767
Erecińska, M., C212
Erickson, A. L., F131
Erickson, G., E218
Erspamer, V., E112
Eskew, M. L., E619
Espeland, M. A., F52
Espiner, E. A., E525
Euler, D. E., H683

Faber, J. J., H200
Fagioli, S., F246
Fahrenkrug, J., E381, E387
Falcon, J. C., II, H392
Farman, N., C82, C90; F394
Faust, I. M., E279
Fawcett, C. P., E586
Fedor, J. M., H435
Feigen, L. P., H326
Felder, D., H308
Feldman, D., E197
Feldstein, M. L., H321; F52
Felig, P., E255, E287
Fenton, T. R., H523
Ferrell, B. A., H193
Ferrone, R. A., H357
Field, J. B., E88
Finch, C. A., R18
Fink, G. D., H445
Finn, A. L., F507
Fischer, J. A., E16
Fischetti, R., H809
Fishbein, M. C., H193
Fisher, D. A., E591, E598
Fitz, A. E., H29
Flaim, K. E., E231
Flaim, S. F., H587
Florant, G. L., R82

Fondacaro, J. D., F570
Ford, L. E., C143
Forker, E. L., E648
Forster, R. E., C269
France, R., F180
Franciosa, J. A., H231
Franklin, A., H619
Franklin, D., H413, H610
Frederiksen, J. W., H167, H701
Freeman, R. H., F310
Frega, N. S., F605
Frohlich, E. D., H52, H193, H357
Frölich, J. C., F180
Fuenmayor, N., C8
Fuller, C. A., R175
Funder, J. W., R115
Fung, Y. C., H251

Gaasch, W. H., H619
Gabel, J. C., H569
Gagerman, E., E493
Galla, J. H., F444
Galton, V. A., E628
Galvin, M. J., H657
Garcia-Romeu, F., F33
Gardner, J. D., E112, E743
Garfield, R. E., C168
Garlick, P. J., E165
Gatzy, J. T., F507
Geduldig, D., C55
Geffin, G. A., H767
Gelbart, D. R., F192
Gennari, F. J., F126
Genton, M. J. H., E532
Gettes, L. S., H455
Gibson, R. G., E720
Giebisch, G., F515
Go, V. L. W., E324
Golden, M. H. N., E165
Goldman, R. F., R228
Gómez, B., H131
Gorczynski, R. J., H494, H505
Gore, R. W., H40
Gotoh, F., H57
Gould, M. K., E606, H350
Grace, D. M., R55
Graham, N., H809
Granger, D. N., E429; H707
Grassmick, B., H34
Greely, H. P., E624
Greene, H. L., H167
Greenfield, J. C., Jr., H435
Gregg, C. M., F52, F228
Gross, P. M., H544
Grossman, M. I., E552, E560, E714
Guarnieri, T., H167
Gurll, N. J., E692
Gutknecht, J., R48
Gutowski, J., E218
Guyton, A. C., F174
Guzzo, J., F359
Gylfe, E., E191

Hagberg, J. M., R145
Hageman, G. R., H345
Hagopian, L., H637
Haines, H., R237
Hainsworth, R., H488
Hajjar, J.-J., E709
Hall, B., E261
Hall, J. E., F174
Hammarström, K., E191
Hammel, H. T., R130
Hamosh, M., E416
Handler, J. S., F586
Hardison, W. G. M., E158
Harlan, D. M., H372
Harmanci, M. C., F440
Harmon, J. W., E692
Harris, P. D., H753
Hart, D. S., E525
Haussler, M. R., E338
Hay, D. M., E27
Hayes, B. E., H452
Haygood, C. C., F40
Hays, E. T., C25
Haywood, J. R., H445
Heber, D., E227
Hebert, N. C., H455
Heckel, R., H231
Heindel, J. J., E316
Heistad, D. D., H544
Hellemans, J., E661, E666
Heller, H. C., R82
Heller, L. J., H82
Hellman, B., E191
Henning, S. J., E437, E451
Henquell, L., H321
Henrich, H., H40
Henrich, W. L., F46
Hersey, S. J., E140
Herz, R., E570
Hesch, R. D., F96
Hess, M. L., H150
Hickson, R. C., R145
Higashihara, E., F219
Hiles, L. G., R175
Hill, J. L., H455
Hiroshige, T., R243, R250
Hirsch, J., E279
Hirschowitz, B. I., E720
Hirst, M., E197
Hisada, M., C8
Hitzig, B. M., R257
Hodgkin, B. C., H182
Hodgson, A. J., R115
Hoffman, W. E., H392
Hofmann, W. W., C199
Hogan, W. J., E63
Holland, D. R., C13
Hollander, D., E686
Holloszy, J. O., R145
Holst, J. J., E381, E387
Hollenberg, N. K., F199
Hondeghem, L. M., H574
Honig, C. R., H321
Honma, K., R243, R250
Honrath, U., F465
Hood, W. B., Jr., H18, H637, H736
Hooker, A. M., C97
Horowitz, J. M., R121
Horst, R. L., E634
Horster, M., F387
Hosomi, H., R279
Houpt, T. R., R23
Howe, D., R48
Huebers, H., R18
Hulter, H. N., F298
Hurley, L. S., E556
Hyman, A. L., H326

Iberall, A., R3
Idahl, L.-Å, E493
Impicciatore, M., E443
Ince, A., F381
Inoue, S., E266
Ito, H., H821
Iwai, J., H385
Iwamoto, Y., E175

Jackson, D. C., R257
Jacobs, M. L., H237
Jacobson, E. D., F570
Jain, R. K., F254
James, T. N., H345
Jamison, R. L., F192
Janicki, J. S., H000
Jarmakani, J. M., H469, H475
Jaspan, J. B., E88
Jefferson, L. S., E126, E134, E231
Jensen, S. L., E381, E387
Jessen, C., R130
Jevning, R., R89
Johnson, A. K., H445
Johnson, L. R., E32, E565
Johnson, P. C., H40
Johnson, P. R., E279
Jones, C. E., H429
Jones, J. L., H214
Jones, M. D., Jr., H162
Jones, R. E., H214
Jorgensen, N. A., E634
Jueppner, H., F96

Kachadorian, W. A., F440
Kadowitz, P. J., H326
Kako, K. J., E509
Kampschmidt, R. F., C118
Kannan, M. S., C168
Kapellakis, G. Z., H237
Kaplan, J. E., H314
Karim, F., H488
Karliner, J. S., H422
Karlsberg, R. P., E614
Karnovsky, M. J., F69
Karwash, S., C143
Kasuga, M., E175
Kaufman, W. R., R76
Kauker, M. L., F111
Kaye, M. P., H289
Keljo, D. J., C269
Keller, U., E238
Kelley, S. E., H367
Kelly, A. B., F359
Kennedy, T. J., H587
Kilpatrick, D., E475
Kim, N. K., E546
Kimberg, D. V., E726
Kimmich, G. A., C73
Kimura, G., F617
King, R. W., Jr., F40
Kinter, L. B., E624
Kippen, I., F137
Kirchner, K. A., F444
Kirk, R. G., C245, C251
Kirshner, N., E475
Klahr, S., F338, F564
Klassen, G. A., H64, H523
Klinenberg, J. R., F137
Klitzman, B., H494
Kloner, R., H559
Klopfenstein, H. S., H188
Knight, T. F., F381
Kobayashi, M., E53
Koch, M. J., E678
Koch, Y., E37
Koehler, R. R., E330
Koelz, H. R., E16
Kokko, J. P., F1, F219
Komwatana, P., H150
Konturek, S. J., E249
Korc, M., E517
Kosaka, K., E175
Kotchen, T. A., F444
Kraikitpanitch, S., F40
Krishnamurty, V. S. R., H728
Krohn, K. A., H794
Król, R., E249
Kuchel, O., F542
Kühl, C., E381
Kunau, R. T., Jr., F186
Kurtzman, N. A., F203
Kusch, M., C82, C90
Kvietys, P., H677

Lacy, F. B., F192
Lai, P. C. W., E27
Laird, J. D., H87
Lalumière, G., F119
LaMont, J. T., E207, E213
Lancaster, C., E703
Lane, R. S., H707
Langer, G. A., H461, H469, H475, H537
Lassiter, W. E., F321
Laughlin, M. H., H118
Lautt, W. W., H262
Lazzara, R., H110
Leaf, A., F605
Leavitt, L., E738
Lechene, C. P., F69, F321
Ledbetter, F. H., E475
Lee, D., H350
Lee, P., C103, C251
Lees, D. E., R228
Lefavour, G. S., F126
Lefer, A. M., H400, H657
Leitl, G., H385
Leon, H. A., C199
Leonard, B. D., H223
Lepeschkin, E., H214
Leslie, B. A., C128, C188
Levenson, D., F199
Levy, M., F12
Levy, M. N., H308
LeWinter, M. M., H422
Lewis, R. E., C97
Li, J. B., E231
Liang, C., H18
Lichtenberger, L. M., E410
Lifschitz, M. D., F473
Liljenquist, J. E., E238
Limas, C. J., H338, H745
Lin, M. T., R41
Lindeman, R. D., F40
Linshaw, M. A., F480
Lluch, S., H131
Long, J. P., H118
Longo, L. D., R181
Lorenz, R. R., H581
Lorscheider, F. L., E27
Louis-Sylvestre, J., E103, E119
Loutzenhiser, R., F376
Lovgren, K., H350
Lowenhaupt, R. W., H23
Lowenstein, E., H767
Lowry, O. H., F246
Luke, R. G., F444
Lun, S., E525
Lund, D. D., H367
Luxon, B., E648
Lynch, M. R., H455

Macchia, D. D., C122
MacIntyre, I., E338
Madias, N. E., F291
Maehlum, S., E255
Makowski, E. L., H162
Malvin, R. L., F22
Mandel, L. J., C35
Manders, W. T., H610
Manohar, M., H628
Marchand, G. R., F209
Marco, E. J., H131

Marcus, M. L., H544
Marier, S. H., C128
Marín, J., H131
Mark, A. L., H29, H188
Marsh, D. J., F1
Marshall, J. C., E227
Martin, J. L., E311
Mashiro, I., H231
Mason, D. T., H794
Mathé, A. A., H803
Mathias, J. R., E311
May, R. J., E112
Mayevsky, A., H809
McCaa, R. E., F174
McCann, S. M., E586
McCarthy, W., F246
McDonagh, P. F., H794
McDonald, F. D., F611
McDonald, K. M., F46
McGarr, J. A., R141
McGee, J., H559
McHugh, P. R., R29
McIntosh, D. M., H435
McKenna, T. M., R237
McKown, D. P., H413
McMahon, T. A., H247
McMurtry, I. F., H104
McPhee, P., E261
Mears, G. J., E27
Meidan, R., E37
Meissner, H. P., E493
Melton, J. E., R237
Merkens, L. S., F228
Merriman, C. R., C118
Meschia, G., E467; H162
Meyer, J. H., E560
Middleton, H. M., III, E272
Mikulecky, D. C., F638
Mildenberger, R. R., H64
Miles, P. R., C103
Mill, J. G., H295
Millard, R. W., H182
Miller, F. N., H753
Miller, P. D., F131
Miolan, J.-P., E366
Mircheff, A. K., E539
Mitch, W. E., E47
Montag, M. J., H118
Mooers, S. U., C1
Moore-Ede, M. C., R175
Moran, T. H., R29
Morff, R. J., H753
Morgan, K. G., E324
Morowitz, H. J., R99
Morris, S. M., E402
Morris, Z. Q., H587
Morton, M. E., R89
Motz, K. L., E304
Moyle, W. R., E218
Mukhopadhyay, A. K., E738
Mullen, Y. S., E266
Mulloney, B., R93
Munson, P. J., E97

Naftilan, A. J., F62
Nagatomo, T., H469, H475
Nahrwold, D. L., E678
Nakase, Y., H809
Nakazawa, M., H469, H475
Naor, Z., E37, E586
Narahashi, T., C204
Narins, R. G., F246
Navar, L. G., F156, F352
Nellans, H. N., E726
Nelson, C. V., H182
Nelson, R. R., H231
Newell, J. B., H720
Newman, W. H., H690
Nielsen, O. V., E381, E387
Nishiki, K., C212
Nishimura, H., H95
Norton, V. M., H95

Odell, W. D., E227
Ogletree, M. L., H400
Ohanian, E. V., H385
Ohno, K., H299
O'Keefe, D. D., H237, H767
Olefsky, J. M., E53
Oparil, S., F62
Oscai, L. B., R141
Osgood, R. W., F104
Osher, A. S., C269
Osswald, H., F286
Oster, J. R., F345
Owen, C. A., Jr., E150
Ozaki, T., E354

Pagani, M., H610
Page, E., C122, C147
Palacios, I., H720
Pandey, R. P., H488
Pandolf, K. B., R228
Pang, I. H., R41
Pang, P. K. T., F151
Park, C. S., F22
Parker, R. E., H707
Parry, D. M., E261
Pascaud, X. B., E532
Pastoriza-Muñoz, E., F321
Patak, R. V., F473
Patrick, T., H610
Paulsen, P. E., F131
Peach, M. J., H281
Peeters, L. L., H162
Peeters, T., E000
Pegg, A. E., E126, E134
Peikin, S. R., E666
Penney, D. G., H516
Pennington, D. G., H767
Pepe, G. J., E74, E78
Perez, G. O., F345, F376
Perkel, D. H., R93
Peters, G., F528
Petersen, H., E714
Peterson, D. F., H759
Peterson, O. W., F228
Peterson, T. M., H601
Petith, M. M., E699
Petrun, M. D., H104
Pettigrew, K. D., H299
Pfeffer, J. M., H193
Pfeffer, M. A., H193
Phear, W. P., H619
Phillips, A. F., E467
Phillips, M. I., H392
Picarelli, J., C256
Pierson, R. N., Jr., F254
Pike, J. W., E338
Pine, M. B., H619
Pirzada, F. A., H736
Plant, R. E., R121
Ploth, D. W., F156, F352
Podevin, R. A., F278
Polimeni, P. I., C122
Post, J., H677
Poujeol, P., F430
Powell, D. W., E402
Powell, W. J., Jr., H237, H720, H767
Power, G. G., R181
Prasad, A. S., E203
Prazma, J., F317
Price, D. C., F254
Priol, C., F278
Prior, R. L., E448
Prosnitz, E. H., F557
Pulliam, L. A., C118
Puschett, J. B., F403
Putney, J. W., Jr., C128, C180, C188

Quinn, P., H610

Rabbani, P., E203
Rall, J. A., C20
Ramey, E. R., H242
Rampal, P., E207
Ramwell, P. W., H242
Randall, W. C., H683
Rankin, J. H. G., H628
Rannels, D. E., E126, E134
Rannels, S. R., E126, E134
Rapaport, S. I., H333
Rapoport, S. I., H299
Rau, E. E., H537
Rector, F. C., Jr., F234, F592
Reddy, W. J., E461
Redinger, R. N., R55
Reeve, E. B., H223
Reeves, J. T., H104
Reilly, P. E. B., E487
Reimer, K., H559
Reineck, H. J., F104
Rembert, J. C., H435
Reuss, L., F507
Rhoades, R. A., E619
Rhode, E. A., H794
Rhodes, D., H619
Richard, C., F12
Rietberg, B., F376
Riggs, T. R., E304, E316
Rios, L. L., F409
Risler, T., H531
Robbins, S. L., H736
Robert, A., E703
Roberts, R., E614
Robertson, S., R160
Robinson, A. J., H333
Roche, M., E670
Rodbard, D., E97
Röjdmark, S., E88
Role, L., H247
Roman, C., E366
Roman, R. J., F111
Rooke, T. W., H372
Roos, A., C49
Rose, J. C., R210
Rose, R. C., E678
Roseman, M. K., F203
Rosenbaum, R., F338
Rosenblatt, S. G., F473
Roskoski, R., Jr., H367
Ross, J., Jr., H413
Ross, P., E82
Rossner, K. L., C220
Rous, S., E22
Rottman, A. J., E643
Rubinstein, E. H., H72
Ruble, P. E., Jr., E686
Rübsamen, K., E1
Ruckebusch, Y., E670
Ruder, M. A., H223
Rudulph, J., F156
Ruiter, J. H., H87
Rush, S., H214
Ryan, G. P., E32, E565

Saba, T. M., H314
Sabbah, H. N., H664
Sacca, L., E287
Sachs, G., E16
Sagawa, K., H117, H267
Sage, H. L., E475
Sahib, M. K., F586
Saker, B., F605
Salaíces, M., H131
Salel, A. F., H794
Salgado, H. C., F174
Sanders, M., H601
Sano, T., H379
Sato, T., H57
Sawanobori, T., H379
Sawyer, W. H., F151
Schaffalitzky de Muckadell, O. B., E381, E387
Schally, A. V., E249
Schedl, H. P., E457, E699
Scherlag, B. J., H110
Schlondorff, D., F458
Schmalz, P. F., E324
Schmid, P. G., H367
Schneyer, L. H., F548
Schoen, H. F., C69
Schrader, N. W., H592
Schramm, L. P., R64
Schrier, R. W., F46, F131
Schuette, W. H., R228
Schulze, K., E709
Schut, H. A. J., E74, E78
Schwaiger, M. M., F570
Schwartz, G. J., F576
Schwartz, J. H., F586
Sebastian, A., F298
Sehlin, J., E500
Sehy, J. T., F203
Sekeris, C. E., E374
Senekjian, H. O., F381
Sestier, F. J., H64
Seyama, I., C136
Shade, R. E., H361
Shambaugh, G. E., III, E330
Share, L., H361
Shareghi, G. R., F367
Sharpless, N. S., E150
Shaw, M. E., E619
Sheldon, R. E., H162
Shepherd, A. P., H157
Shepherd, J. T., H581
Sherman, A., H610
Sherman, R. G., C220
Sherwin, R., E287
Shields, R. P., E311
Shikama, H., E345
Shimazu, H., H821
Shimizu, T., H759
Shinsako, J., R210
Shorey, J. M., E410
Shrager, P., C238
Siedenburg, F., R210
Siegman, M. J., C1
Sigala, J. F., F298
Simon, E., R130
Simon-Oppermann, C., R130
Sims, S. M., C168
Singer, D. H., H559
Singer, I., F359
Sinha, S., F564
Sinha, S. N., H683
Sit, S. P., H677
Slatopolsky, E., F338
Smigel, M., F180
Smith, F. N., R160
Smith, J. B., H400
Smith, T. W., H531
Smith, W. L., F451
Smith, W. R., R89
Snow, T. R., H144

Solomon, T. E., E560, E714
Somberg, J. C., H531
Sonnenschein, R. R., H72, H482
Soodak, H., R3
Sorge, J., H809
Soulsby, M. E., H150
Spaan, J. A. E., H87
Spanos, E., E338
Sparks, H. V., H372
Sperelakis, N., H46
Sperling, M. A., E448
Spevack, S., F126
Spielman, W. S., F286
Spring, K. R., F617
Sraer, J., F96
Sraer, J. D., F96
Stacey, T. E., F536
Stapleton, F. B., F480
Starkus, J. G., C204, C238
Steele, T. H., F425
Stef, J. J., E63
Stein, J. H., F104
Stein, P. D., H664
Steinberg, M. I., C13
Stephens, G. A., F310
Stern, J. S., E279
Stewart, E. T., E63
Stoner, L. C., F367
Strunz, U. T., E552
Styka, P. E., H516
Sucanthapree, C., F548
Suga, H., H267
Sullivan, L. P., F26
Sulzman, F. M., R175
Sylk, D., F403
Szurszewski, J. H., E324

Taillon, P., H262
Takeda, H., H809
Täljedal, I.-B., E493
Tanahashi, N., H57
Tanaka, K., H57
Tang, L. K. L., E291
Tannen, R. L., F265
Tapper, E. J., E402
Tarnowski, D., H361
Taylor, A. E., E429; H707
Taylor, I. L., E443
Taylor, J. J., H407
Templeton, G. H., H276, H728
Ten Eick, R. E., H559
Teredesai, P. R., F403
Thames, M. D., H188
Thomas, C. E., F156, F352
Thomas, S. R., F638
Thor, P., E249
Thornburg, K. L., H200
Tisher, P. W., H803
Togawa, T., H821
Tomita, M., H57
Tomoike, H., H413
Tomovic, R., R205
Tong, E. Y., H803
Tosteson, D. C., C245, C251
Touvay, C., F430
Townsley, J. D., E74, E78
Tranberg, K. G., E577
Trier, J. S., E207, E410
Trippodo, N. C., H52
Tsuchiya, M., H357
Tucker, B. J., F142
Turlapaty, P. D. M. V., H208
Turner, B. M., R82
Tuthill, R., H385
Tyce, G. M., E150; H289

Ui, M., E345
Underwood, J. L., F425
Unger, T., F542
Urthaler, F., H345

Vaamonde, C. A., F345
Valleau, J. D., H707
Valtin, H., E624; F440
Vandewalle, A., F394
VandeWalle, C. M., C188
Van Os, C. H., E539
Van Petten, G. R., E27
Vantrappen, G., E661, E666
Vasdev, S. C., E509
Vassallo, D. V., H295
Vasu, M. A., H237, H767
Vaswani, A., E82
Vatner, S. F., H610
Ventola, A., E213
Vezeridis, M. P., H237
Villegas, L., E361
Vogel, S., H46
Voigt, J., E374
Vokonas, P. S., H736

Wahren, J., E255
Wali, S., E619
Walker, J. L., H188
Walker, L. A., F180
Wallick, D. W., H308
Walling, M. W., E539
Walsh, G. M., H52, H357
Walsh, J. H., E443
Wang, J., F254
Ward, R. H. T., F536
Warnock, D. G., F234
Waterlow, J. C., E165
Watkins, B. E., F310
Webb, R. C., C227
Weber, K. T., H784
Weedon, A. P., F536
Wehrmacher, W. H., H683
Weinman, E. J., F381
Weintraub, R. M., H619
Weisfeldt, M. L., H167, H701
Weiss, A. K., H193
Weiss, J. L., H701
Weissman, M. L., H72, H482
Weitzman, R. E., E591, E598
Welling, D. J., F26
Wenger, J., E457
Wentland, S. H., H223
Whang-Peng, J., R228
Wheelan, S., H276
Whinnery, M. A., F186
Whistler, S. J., H553
White, F. C., H413, H601
Whorton, A. R., F180
Wiegman, D. L., H753
Wiegner, A. W., H776
Wiesmann, W., F564
Wilbur, W. J., R181
Wildenthal, K., H276
Wilkinson, C. W., R210
Will, J. A., H452, H628
Willerson, J. T., H276, H728
Williams, J. A., E517
Willis, J. S., C159
Wilmoth, F. R., H753
Wilson, A. F., R89
Wilson, D. F., C212
Wilson, D. R., F465
Wilson, K. C., E598
Winder, W. W., R145
Windhager, E. E., F492
Wise, H. D., E304
Wit, A. L., H1
Wolfe, R. R., R219
Wolff, N. C., R23
Wong, C., H262
Wood, C. A., E158
Wood, J. D., E392
Woods, L. L., H200
Woods, M., E692
Wright, E. M., E539
Wright, F. S., F515

Yamakoshi, K.-I., H821
Yamamoto, M., H57
Yamamoto, W. S., R265
Yarger, W. E., H592
Yates, F. E., R1, R201
Yates, J., F564
Yelich, M. R., H683
Yen, R. T., H251
Yim, G. K. W., H553
Yokoo, H., E330
Yokoyama, S., E354
Yoo, P., F458
Young, J. A., F548
Yu, K. T., E606
Yunice, A. A., F40

Zamlauski, M. J., F228
Zanzi, I., E82
Zenser, T. V., F213
Zor, U., E37